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May 12, 2003

U.S. Nuclear Regulatory Commission Attention: Document Control Desk Washington, D.C. 20555

SUBJECT: Entergy Nuclear Operations, Inc. Pilgrim Nuclear Power Station Docket No. 50-293

Radioactive Effluent and Waste Disposal Report (2002)

LETTER NUMBER: 2.03.073

Dear Sir or Madam:

The enclosed 2002 annual "Radioactive Effluent and Waste Disposal Report" is submitted by Entergy Nuclear Operations, Inc. in accordance with Pilgrim Nuclear Power Station Technical Specification 5.6.3 and Regulatory Guide 1.21.

Sincerely,

૬√WilliamJ. Riggs

WGL/dd

Attachment: Radioactive Effluent and Waste Disposal Report (2002)

cc: U.S. Nuclear Regulatory Commission Region 1 475 Allendale Road King of Prussia, PA 19406

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PILGRIM NUCLEAR POWER STATION

Facility Operating License DPR-35

Radiological Effluent and Waste Disposal Report

January 1 through December 31, 2002





PILGRIM NUCLEAR POWER STATION Facility Operating License DPR-35

RADIOACTIVE EFFLUENT AND WASTE DISPOSAL REPORT

JANUARY 01 THROUGH DECEMBER 31, 2002

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Pilgrim Nuclear Power Station Effluent and Waste Disposal Report January-December 2002

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EXECUTIVE SUMMARY

PILGRIM NUCLEAR POWER STATION RADIOACTIVE EFFLUENT AND WASTE DISPOSAL REPORT INCLUDING METEOROLOGICAL DATA JANUARY 01 THROUGH DECEMBER 31, 2002

INTRODUCTION

This report quantifies the radioactive gaseous, liquid, and radwaste releases, and summarizes the local meteorological data for the period from January 01 through December 31, 2002. This document has been prepared in accordance with the requirements set forth in the Pilgrim Nuclear Power Station (PNPS) Technical Specifications and Revision 1 of Regulatory Guide 1.21, "Measuring, Evaluating, and Reporting Radioactivity in Solid Wastes and Releases of Radioactive Material in Liquid and Gaseous Effluents from Light Water Cooled Nuclear Power Plants".

The quantity of radioactive material released from PNPS was determined from sample analyses and continuous on-line monitoring of gaseous releases from the main stack, reactor building vent, turbine building, and various decontamination facilities, and liquid releases into the discharge canal.

The quantity and volume of radioactive waste shipped offsite from PNPS for processing and burial were determined from data contained on the radwaste shipping documentation. The meteorological data were obtained from monitoring instruments located on the 220-foot meteorological tower located at Pilgrim Station.

GASEOUS EFFLUENTS

Gaseous radioactive releases for the reporting period are quantified in Tables 2.2-A, 2.2-B, and 2.2-C. Radioactive noble gases released during the period totaled 62 Curies. Releases of radioactive particulates and iodines totaled 0.023 Curies, and tritium releases totaled 691 Curies. No gross alpha radioactivity was detected in gaseous effluents.

Noble gases released in gaseous effluents resulted in a maximum total body dose of 0.016 mrem, with a corresponding skin dose of 0.25 mrem. The release of radioactivity in gaseous effluents from PNPS during 2002 resulted in a total body dose to the maximum-exposed hypothetical individual of about 2.6 mrem from radioactive particulates, iodines, and tritium. The maximum hypothetical dose to any organ from radioactive particulates, iodines, and tritium was about 3.0 mrem. All of these maximum doses occurred to a hypothetical individual located on property under Entergy control. The maximum, hypothetical total body dose from the combined release of radioactivity in gaseous effluents was 3.0 mrem.

The maximum individual doses from gaseous radioactive effluents were compared to the applicable ODCM dose limits. Noble gas doses were less than 2% of the corresponding 10CFR50 dose objectives. Maximum doses resulting from releases of particulates, iodines, and tritium in gaseous effluents were less than 20% of corresponding 10CFR50 objectives.

In March 2003, it was discovered that a heating tape designed to keep the sample line at the main stack at an elevated temperature had failed in March 2002. Although this failure had the potential to affect sampling results, it was determined that the constant flow of air through the sample line would preclude condensation, and there would be no need for corrections to sample results collected between March and December of 2002.

LIQUID EFFLUENTS

Liquid radioactive releases for the reporting period are quantified in Tables 2.3-A and 2.3-B. Due to aggressive practices in reprocessing and reuse of water, liquid effluent releases were significantly lower than in past years. In fact, no discharges occurred during the months of March through December 2002. Liquid effluents released into the discharge canal contained 0.001 Curies of fission and activation products, and 0.29 Curies of tritium. No dissolved/entrained noble gases or gross alpha radioactivity were detected in liquid effluents.

The release of radioactivity in liquid effluents from PNPS during 2002 resulted in a total body dose of about 0.000042 mrem to the maximum-exposed hypothetical individual. The maximum hypothetical dose to any organ from liquid effluents was about 0.00022 mrem.

The maximum individual doses from liquid radioactive effluents were compared to the applicable ODCM dose limits. All doses from liquid effluents were less than 0.005% of their corresponding effluent control limit. In addition, all quarterly average concentrations of radioactivity in liquids released to Cape Cod Bay were less than 0.09% of the corresponding limits.

METEOROLOGICAL DATA

Meteorological joint frequency distributions are listed in Appendix A. During the course of 2002, numerous problems were encountered with meteorological sensors and translator card electronics. In October 2002, the hard disk on the computer containing the meteorological database failed, resulting in a loss of major portions of data for the months of August, September, and October. Data recovery for the entire annual period was about 77% for the 33-ft level, and 63% for the 220-ft level of the tower. The predominant wind direction was from the south-southwest, which occurred approximately 15% of the time during the reporting period. The predominant stability class was Class D, which occurred about 31% of the time during the reporting period

OFFSITE AMBIENT RADIATION MEASUREMENTS

Ambient radiation exposure was evaluated to complete the assessment of radiological impact on humans. A small number of thermoluminescent dosimeters (TLDs) indicated an elevation in ambient radiation exposure on Entergy property in close proximity to the station, when compared to background levels in the region. This elevation is due to nitrogen-16 contained within the plant steam system, as opposed to radioactive effluent released from the plant. The dose to the maximum-exposed member of the National Guard, who are considered members of the public, was estimated as being about 11.5 mrem during 2002. There was no measurable increase during 2002 in ambient radiation measurements at the location of the nearest resident to PNPS.

The collective total body dose to a maximum-exposed hypothetical individual from radioactive gases, liquids, and ambient exposure resulting from PNPS operation during 2002 was calculated as being 5.7 mrem. This amount is less than 2% of the typical dose of 300 to 400 mrem received each year by an average person from other sources of natural and man-made radiation. Although this calculated collective dose occurs to a maximum-exposed <u>hypothetical</u> individual, it is also well below the NRC dose limit of 100 mrem/yr specified in 10CFR20.1301, as well as the EPA dose limit of 25 mrem/yr specified in 40CFR190. Both of these limits are to be applied to <u>real</u> members of the general public, so the fact that the dose to the <u>hypothetical</u> maximum-exposed individual is within the limits ensures that any dose received by a real member of the public would be smaller and well within any applicable limit.

RADIOACTIVE SOLID WASTE DISPOSAL

Solid radioactive waste shipped offsite for processing and disposal during the reporting period is described in Table 7.0. Approximately 250 cubic meters of solid waste, containing 170 Curies of radioactivity, were shipped during the reporting period.

CONCLUSION

The PNPS Offsite Dose Calculation Manual contains effluent controls to limit doses resulting from releases of radioactivity to the environment. None of the effluent controls associated with liquid or gaseous effluents were exceeded during the reporting period, as confirmed by conservative dose assessments performed at weekly and monthly intervals. Conformance to the PNPS ODCM effluent control limits ensures that releases of radioactivity in liquid and gaseous effluents are kept as low as reasonably achievable in accordance with 10 CFR Part 50, Appendix I. Compliance with the ODCM also demonstrates that requirements of the Environmental Protection Agency's nuclear fuel cycle standard, 40CFR190.10, Subpart B, have been met. Based on the dose assessment results for 2002, there was no significant radiological impact on the general public from PNPS operation.



2.0 RADIOACTIVE EFFLUENT DATA

Radioactive gaseous and liquid releases for the reporting period are given in the standard format presented in Tables 1A, 1B, 1C, 2A, 2B, and Supplemental Information table from NRC Regulatory Guide 1.21 (Reference 1) format.

2.1 Supplemental Effluent Release Data

Supplemental information related to radioactive gaseous and liquid releases for the reporting period are given in the standard NRC Regulatory Guide 1.21 format in Table 2.1.

2.2 Gaseous Effluent Data

Gaseous radioactivity is released from Pilgrim Station to the atmosphere from the main stack, reactor building vent, turbine building, and various decontamination facilities. Combined gaseous effluent releases from all release points are summarized in Table 2.2-A. No alpha activity was detected on any of the particulate filters collected during the reporting period. The total gaseous releases for various categories of radionuclides, as well as the corresponding average release rates, can be summarized as follows:

- Noble gases: 62.4 Ci, 1.98 μCi/sec
- Particulates and iodines with 0.023 Ci, 0.00073 μ Ci/sec half-life greater than 8 days
- Tritium: 691 Ci, 21.9 μCi/sec

Effluent releases from the main stack are detailed in Table 2.2-B. The main stack is an elevated release point with a height of approximately 400 feet above sea level. The main stack is located about 700 feet west-northwest of the reactor building.

Ground-level effluent releases are detailed in Table 2.2-C. Data in this table include releases from the reactor building vent, turbine building, and assorted equipment decontamination facilities (e.g., hot machine shop, carbon dioxide pellet decon trailer, plastic media decon trailer, etc.) used during the period. Due to the close proximity of the reactor building, both of these release points are considered to be mixed-mode/ground level release points.

In March 2003, it was discovered that a heating tape designed to keep the sample line at the main stack at an elevated temperature had failed in March 2002. The purpose of this heating tape is to prevent the formation of condensation in the sample line, which could affect sampling of radioactive particulates and iodines. An engineer with expertise in HVAC determined that the constant flow of air through the sample line would prevent condensation from occurring, and there would be no need for corrections to sample results collected between March and December of 2002. In addition, iodines were detected during this time period, indicating that the loss of heat trace did not adversely affect sampling.

Tritium samples were collected from the main stack and reactor building vent during the month of September 2002. Although the samples were analyzed, the records used to calculate tritium releases from the two release points could not be located, and total releases could not be calculated from the analytical results for the month. Tritium releases for the month of September were estimated based on the average of the releases for the months of August and October.

2.3 Liquid Effluent Data

Liquid radioactivity is released from PNPS to Cape Cod Bay via the circulating water discharge canal. These effluents enter Cape Cod Bay at the outfall of the canal, which is located about 1100 feet north of the reactor building.

Due to aggressive practices in reprocessing and reuse of water at Pilgrim Station during 2002, liquid effluent releases were significantly lower than in past years. In fact, no discharges occurred during the months of March through December 2002.

Liquid effluent releases are summarized in Table 2.3-A. Detailed breakdowns for individual radionuclides are listed in Table 2.3-B. No dissolved/entrained gases or gross alpha radioactivity were detected in liquid effluents released during the reporting period. Total releases for the various categories of radionuclides, as well as their corresponding mean concentrations, can be summarized as follows:

•	Total Effluent Volume:	45,600 Liters
•	Total Dilution Volume:	350,000,000 Liters
•	Fission/Activation products:	0.0010 Ci, 0.0000000029 μCi/mL
•	Tritium:	0.29 Ci, 0.00000084 μCi/mL
•	Dissolved/entrained noble gases:	Not Detected

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Table 2.1 Pilgrim Nuclear Power Station Effluent and Waste Disposal Report Supplemental Information January-June 2002

FACILITY: PILGRIM NUCLEAR POWER STATION

LICENSE: DPR-35

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1. REGULATORY LIMITS

- a. Fission and activation gases:
- b,c. lodines, particulates with half-life: >8 days, tritium

1500 mrem/yr to any organ at site boundary

500 mrem/yr total body and 3000 mrem/yr for

d. Liquid effluents:

0.06 mrem/month for whole body and 0.2 mrem/month for any organ (without radwaste treatment)

skin at site boundary

2. EFFLUENT CONCENTRATION LIMITS

- a. Fission and activation gases:
- b. lodines:
- c. Particulates with half-life > 8 days:
- d. Liquid effluents:

10CFR20 Appendix B Table II 10CFR20 Appendix B Table II 10CFR20 Appendix B Table II 2E-04 μ Ci/mL for entrained noble gases; 10CFR20 Appendix B Table II values for all other radionuclides

3. AVERAGE ENERGY

Not Applicable

4. MEASUREMENTS AND APPROXIMATIONS OF TOTAL RADIOACTIVITY

- a. Fission and activation gases:
- b. lodines:
- c. Particulates:
- d. Liquid effluents:

5. BATCH RELEASES

- a. Liquid Effluents
 - 1. Total number of releases:
 - 2. Total time period (minutes):
 - 3. Maximum time period (minutes):
 - 4. Average time period (minutes):
 - 5. Minimum time period (minutes):
 - 6. Average stream flow (Liters/min): during periods of release of effluents into a flowing stream
- b. Gaseous Effluents

6. ABNORMAL RELEASES

- a. Liquid Effluents
- b. Gaseous Effluents

High purity germanium gamma spectroscopy for all gamma emitters; radiochemistry analysis for H-3, Fe-55 (liquid effluents), Sr-89, and Sr-90

Jan-Mar 2002	Apr-Jun 2002
6	-0-
2.98E+02	-0-
1.70E+02	-0-
4.97E+01	-0-
2.30E+01	-0-
1.17E+06	-0-
None	None
None	None
None	None

Table 2.1 (continued) Pilgrim Nuclear Power Station Effluent and Waste Disposal Report Supplemental Information July-December 2002

FACILITY: PILGRIM NUCLEAR POWER STATION

LICENSE: DPR-35

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1. REGULATORY LIMITS

- a. Fission and activation gases:
- b,c. lodines, particulates with half-life: >8 days, tritium

d. Liquid effluents:

500 mrem/yr total body and 3000 mrem/yr for skin at site boundary

1500 mrem/yr to any organ at site boundary

0.06 mrem/month for whole body and 0.2 mrem/month for any organ (without radwaste treatment)

2. EFFLUENT CONCENTRATION LIMITS

- a. Fission and activation gases:
- b. lodines:
- c. Particulates with half-life > 8 days:
- d. Liquid effluents:

10CFR20 Appendix B Table II 10CFR20 Appendix B Table II 10CFR20 Appendix B Table II 2E-04 μ Ci/mL for entrained noble gases; 10CFR20 Appendix B Table II values for all other radionuclides

3. AVERAGE ENERGY

Not Applicable

4. MEASUREMENTS AND APPROXIMATIONS OF TOTAL RADIOACTIVITY

- a. Fission and activation gases:
- b. lodines:
- c. Particulates:
- d. Liquid effluents:

5. BATCH RELEASES

- a. Liquid Effluents
 - 1. Total number of releases:
 - 2. Total time period (minutes):
 - 3. Maximum time period (minutes):
 - 4. Average time period (minutes):
 - 5. Minimum time period (minutes):
 - 6. Average stream flow (Liters/min): during periods of release of effluents into a flowing stream
- b. Gaseous Effluents

6. ABNORMAL RELEASES

- a. Liquid Effluents
- b. Gaseous Effluents

High purity germanium gamma spectroscopy for all gamma emitters; radiochemistry analysis for H-3, Fe-55 (liquid effluents), Sr-89, and Sr-90

Jul-Sep 2002	Oct-Dec 2002
-0-	-0-
-0-	-0-
-0-	-0-
-0-	-0-
-0-	-0-
-0-	-0-
None	None
None	None
None	None

Table 2.2-A **Pilgrim Nuclear Power Station** Effluent and Waste Disposal Report Gaseous Effluents - Summation of All Releases January-June 2002

Period:	Period:	Estimated
Jan-Mar 2002	Apr-Jun 2002	Total Error

A. FISSION AND ACTIVATION GASES

Total Release: Ci	5.77E+00	3.24E+01	±22%
Average Release Rate During Period: µCi/sec	7.31E-01	4.10E+00	
Percent of Effluent Control Limit	*	*	

B. IODINES

Total Iodine-131 Release: Ci	4.28E-04	4.67E-04	±20%
Average Release Rate During Period: µCi/sec	5.43E-05	5.92E-05	
Percent of Effluent Control Limit	*	*	

C. PARTICULATES

Total Release: Ci	2.28E-04	1.12E-04	±21%
Average Release Rate During Period: µCi/sec	2.89E-05	1.42E-05	
Percent of Effluent Control Limit	*	*]
Gross Alpha Radioactivity: Ci	NDA	NDA	

D. TRITIUM

D. TRITIUM			
Total Release: Ci	1.59E+02	1.25E+02	±20%
Average Release Rate During Period: µCi/sec	2.02E+01	1.59E+01	
Percent of Effluent Control Limit	*	1 *	

Notes for Table 2.2-A:

* Percent of Effluent Control Limit values based on dose assessments are provided in Section 7 of this report.

- 1. NDA stands for No Detectable Activity.
- 2. LLD for airborne gross alpha activity listed as NDA is 1E-11 μ Ci/cc.

Table 2.2-A (continued) Pilgrim Nuclear Power Station Effluent and Waste Disposal Report Gaseous Effluents - Summation of All Releases July-December 2002

Period:	Period:	Estimated
Jul-Sep 2002	Oct-Dec 2002	Total Error

A. FISSION AND ACTIVATION GASES

Total Release: Ci	1.91E+01	5.22E+00	±22%
Average Release Rate During Period: µCi/sec	2.42E+00	6.62E-01	
Percent of Effluent Control Limit	*	*	

B. IODINES

Total Iodine-131 Release: Ci	8.57E-04	6.89E-04	±20%
Average Release Rate During Period: µCi/sec	1.09E-04	8.73E-05	
Percent of Effluent Control Limit	*	*	

C. PARTICULATES

Total Release: Ci	3.70E-04	7.20E-04	±21%
Average Release Rate During Period: µCi/sec	4.69E-05	9.12E-05	
Percent of Effluent Control Limit	*	*	
Gross Alpha Radioactivity: Ci	NDA	NDA]

D. TRITIUM

Total Release: Ci	1.57E+02	2.49E+02	±20%
Average Release Rate During Period: µCi/sec	1.99E+01	3.16E+01	
Percent of Effluent Control Limit	* • •	*	

Notes for Table 2.2-A:

* Percent of Effluent Control Limit values based on dose assessments are provided in Section 7 of this report.

1. NDA stands for No Detectable Activity.

2. LLD for airborne gross alpha activity listed as NDA is 1E-11 $\mu\text{Ci/cc.}$

Table 2.2-B Pilgrim Nuclear Power Station Effluent and Waste Disposal Report Gaseous Effluents - Elevated Release January-June 2002

	Continuous	Mode	Batch	Mode
Nuclide Released	Jan-Mar 2002	Apr-Jun 2002	Jan-Mar 2002	Apr-Jun 2002

1. FISSION AND ACTIVATION GASES - Ci

Ar-41	NDA	NDA	N/A	N/A
Kr-85m	NDA	NDA	N/A	N/A
Kr-87	NDA	NDA	N/A	N/A
Kr-88	NDA	NDA	N/A	N/A
Xe-133	NDA	NDA	N/A	N/A
Xe-133m	NDA	NDA	N/A	N/A
Xe-135	NDA	2.53E+01	N/A	N/A
Xe-135m	NDA	NDA	N/A	N/A
Total for period	NDA	2.53E+01	N/A	N/A

2. IODINES - Ci

3 PARTICIU	ATES - Ci	· · · ·		
Total for period	1.35E-03	1.08E-03	N/A	N/A
	i.	i i		
I-133	1.16E-03	9.04E-04	N/A	N/A
I-131	1.90E-04	1.79E-04	N/A	N/A

3. PARTICULATES - Ci

Mn-54	NDA	NDA	N/A	N/A
Co-60	6.03E-06	NDA	N/A	N/A
Sr-89	1.18E-05	1.69E-05	N/A	N/A
Sr-90	NDA	NDA	N/A	N/A
Cs-137	1.37E-06	NDA	N/A	N/A
Ba/La-140	1.69E-05	2.68E-05	N/A	N/A
Total for period	3.61E-05	4.37E-05	N/A	N/A

4. TRITIUM - Ci

H-3	3.03E+00	4.15E+00	N/A	N/A

Notes for Table 2.2-B:

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N/A stands for not applicable.
 NDA stands for No Detectable Activity.

3. LLDs for airborne radionuclides listed as NDA are as follows:

Fission Gases:	1E-04 μCi/cc
lodines:	1E-12 µCi/cc
Particulates:	1E-11 μCi/cc

Table 2.2-B (continued) Pilgrim Nuclear Power Station Effluent and Waste Disposal Report Gaseous Effluents - Elevated Release July-December 2002

	Continuous	Mode	Batch	Mode
Nuclide Released	Jul-Sep 2002	Oct-Dec 2002	Jul-Sep 2002	Oct-Dec 2002

1. FISSION AND ACTIVATION GASES - Ci

Ar-41	NDA	NDA	N/A	N/A
Kr-85m	NDA	NDA	N/A	N/A
Kr-87	NDA	NDA	N/A	N/A
Kr-88	NDA	NDA	N/A	N/A
Xe-133	NDA	NDA	N/A	N/A
Xe-133m	NDA	NDA	N/A	N/A
Xe-135	1.42E+01	NDA	N/A	N/A
Xe-135m	NDA	NDA	N/A	N/A
Total for period	1.42E+01	NDA	N/A	N/A

2. IODINES - Ci

Total for period	1.28E-03	<u> 8.74E-04</u>	N/A	N/A
Total for maria d	1.005.00	0.745.04		
I-133	1.08E-03	7.44E-04	N/A	N/A
I-131	1.97E-04	1.30E-04	N/A	N/A

3. PARTICULATES - Ci

Mn-54	NDA	- NDA	N/A	N/A
Co-60	NDA	NDA	N/A	N/A
Sr-89	1.70E-05	7.32E-06	N/A	N/A
Sr-90	NDA	NDA	N/A	N/A
Cs-137	NDA	NDA	N/A	N/A
Ba/La-140	9.27E-05	NDA	N/A	N/A
Total for period	1.10E-04	7.32E-06	N/A	N/A

4. TRITIUM – Ci

	••			
H-3	4.90E+00	6.02E+00	N/A	N/A

Notes for Table 2.2-B:

N/A stands for not applicable.
 NDA stands for No Detectable Activity.
 LLDs for airborne radionuclides listed as NDA are as follows:

Fission Gases:	1E-04 μCi/cc
lodines:	1E-12 μCi/cc
Particulates:	1E-11 μCi/cc

Table 2.2-C Pilgrim Nuclear Power Station Effluent and Waste Disposal Report Gaseous Effluents - Ground Level Release January-June 2002

	Continuous	Mode	Batch	Mode
Nuclide Released	Jan-Mar 2002	Apr-Jun 2002	Jan-Mar 2002	Apr-Jun 2002

1. FISSION AND ACTIVATION GASES - Ci

Ar-41	NDA	NDA	N/A	N/A
Kr-85m	NDA	NDA	N/A	N/A
Kr-87	NDA	NDA	N/A	N/A
Kr-88	NDA	NDA	N/A	N/A
Xe-133	NDA	NDA	N/A	N/A
Xe-133m	NDA	NDA	N/A	N/A
Xe-135	5.77E+00	7.02E+00	N/A	N/A
Xe-135m	NDA	NDA	N/A	N/A
Total for period	5.77E+00	7.02E+00	N/A	N/A

2. IODINES – Ci

I-131	2.38E-04	2.88E-04	N/A	N/A
I-133	2.53E-03	2.78E-03	N/A	N/A
Total for period	2.77E-03	3.07E-03	N/A	N/A

3. PARTICULATES - Ci

Mn-54	NDA	NDA	N/A	N/A
Co-60	NDA	NDA	N/A	N/A
Sr-89	1.11E-04	6.85E-05	N/A	N/A
Sr-90	NDA	NDA	N/A	N/A
Cs-137	3.19E-05	NDA	N/A	N/A
Ba/La-140	4.90E-05	NDA	N/A	N/A
Total for period	1.92E-04	6.85E-05	N/A	N/A

4. TRITIUM –	Ci			
H-3	1.56E+02	1.21E+02	N/A	N/A

Notes for Table 2.2-C:

N/A stands for not applicable.
 NDA stands for No Detectable Activity.
 LLDs for airborne radionuclides listed as NDA are as follows:

Fission Gases:	1E-04 μCi/cc
lodines:	1E-12 μCi/cc
Particulates:	1E-11 μCi/cc

Table 2.2-C (continued) Pilgrim Nuclear Power Station Effluent and Waste Disposal Report Gaseous Effluents - Ground Level Release July-December 2002

	Continuous	Mode	Batch	Mode
Nuclide Released	Jul-Sep 2002	Oct-Dec 2002	Jul-Sep 2002	Oct-Dec 2002

1. FISSION AND ACTIVATION GASES - Ci

Ar-41	NDA	NDA	N/A	N/A
Kr-85m	NDA	NDA	N/A	N/A
Kr-87	NDA	NDA	N/A	N/A
Kr-88	NDA	NDA	N/A	N/A
Xe-133	NDA	NDA	N/A	N/A
Xe-133m	NDA	NDA	N/A	N/A
Xe-135	4.89E+00	5.22E+00	N/A	N/A
Xe-135m	NDA	NDA	N/A	N/A
Total for period	4.89E+00	5.22E+00	N/A	N/A

2. IODINES - Ci

I-131	6.59E-04	5.58E-04	N/A	N/A
l-133	5.20E-03	5.14E-03	N/A	N/A
Total for period	5.86E-03	5.70E-03	N/A	• N/A

3. PARTICULATES - Ci

Mn-54	1.90E-06	NDA	N/A	N/A
Co-60	NDA	NDA	N/A	N/A
Sr-89	1.00E-04	9.73E-05	N/A	N/A
Sr-90	NDA	NDA	N/A	N/A
Cs-137	NDA	NDA	N/A	N/A
Ba/La-140	1.58E-04	6.15E-04	N/A	N/A
Total for period	2.60E-04	7.12E-04	N/A	N/A

4. TRITIUM – Ci

		•••			
	H-3	1.52E+02	2.43E+02	N/A	N/A
1					

Notes for Table 2.2-C:

N/A stands for not applicable.
 NDA stands for No Detectable Activity.
 LLDs for airborne radionuclides listed as NDA are as follows:

Fission Gases:	1E-04 μCi/cc
lodines:	1E-12 μCi/cc
Particulates:	1E-11 μCi/cc

Table 2.3-A Pilgrim Nuclear Power Station Effluent and Waste Disposal Report Liquid Effluents - Summation of All Releases January-June 2002

Jan-Mar 2002 Apr-Jun 2002 Total Er	or
A FIGURA AND A OTWATION PRODUCTO	
A. FISSION AND AUTIVATION PRODUCTS	
Total Release (not including H-3, noble gas, or alpha); Ci 1.00E-03 N/A ±12%	
Average Diluted Concentration During Period: µCi/mL 2.86E-09 N/A	
Percent of Effluent Concentration Limit* 5.24E-02% N/A	
Total Release: Ci 2.93E-01 N/A ±9.4%	
Average Diluted Concentration During Period: µCi/mL 8.39E-07 N/A	
Percent of Effluent Concentration Limit* 8.39E-02% N/A	
C. DISSOLVED AND ENTRAINED GASES	
Total Release: Ci NDA N/A ±16%	
Average Diluted Concentration During Period: µCi/mL NDA N/A	
Percent of Effluent Concentration Limit* NDA N/A	1. a
D. GROSS ALPHA RADIOACTIVITY	
Total Release: Ci NDA N/A ±34%	
E. VOLUME OF WASTE RELEASED PRIOR TO DILUTION	
Waste Volume: Liters 4.56E+04 N/A ±5.7%	
F. VOLUME OF DILUTION WATER USED DURING PERIOD	
Dilution Volume: Liters 1.52E+11 N/A ±10%	

Notes for Table 2.3-A:

* Additional percent of Effluent Control Limit values based on dose assessments are provided in Section 7 of this report.

- N/A stands for not applicable.
 NDA stands for No Detectable Activity.
- 3. LLD for dissolved and entrained gases listed as NDA is 1E-05 µCi/mL.

4. LLD for liquid gross alpha activity listed as NDA is 1E-07 µCi/mL.

Table 2.3-A (continued) **Pilgrim Nuclear Power Station** Effluent and Waste Disposal Report Liquid Effluents - Summation of All Releases July-December 2002

	Period:	Period:	Estimated
	Jul-Sep 2002	Oct-Dec 2002	Total Error
A. FISSION AND ACTIVATION PRODUCTS		· · · · · · · · · · · · · · · · · · ·	
Total Release (not including H-3, noble gas, or alpha): Ci	N/A	N/A	±12%
Average Diluted Concentration During Period: µCi/mL	N/A	N/A	
Percent of Effluent Concentration Limit*	N/A	N/A	
B. TRITIUM			
Total Release: Ci	N/A	N/A	±9.4%
Average Diluted Concentration During Period: µCi/mL	N/A	N/A	
Percent of Effluent Concentration Limit*	N/A	N/A	
C. DISSOLVED AND ENTRAINED GASES			
Total Release: Ci	N/A	N/A	±16%
Average Diluted Concentration During Period: µCi/mL	N/A	N/A	
Percent of Effluent Concentration Limit*	N/A	N/A	
D. GROSS ALPHA RADIOACTIVITY			<i>P</i>
Total Release: Ci	N/A	N/A	±34%
E. VOLUME OF WASTE RELEASED PRIOR TO DILUTIO	N		a 1997
Waste Volume: Liters	N/A	N/A	±5.7%
F. VOLUME OF DILUTION WATER USED DURING PERI	OD		
Dilution Volume: Liters	N/A	N/A	±10%

Notes for Table 2.3-A:

* Additional percent of Effluent Control Limit values based on dose assessments are provided in Section 7 of this report.

- 1. N/A stands for not applicable.
- 2. NDA stands for No Detectable Activity.
- 3. LLD for dissolved and entrained gases listed as NDA is 1E-05 µCi/mL.
- 4. LLD for liquid gross alpha activity listed as NDA is 1E-07 μCi/mL.

Table 2.3-B Pilgrim Nuclear Power Station Effluent and Waste Disposal Report Liquid Effluents January-June 2002

	Continuous	Mode	Batch	Mode
Nuclide Released	Jan-Mar 2002	Apr-Jun 2002	Jan-Mar 2002	Apr-Jun 2002

1. FISSION AND ACTIVATION PRODUCTS - Ci

Cr-51	N/A	N/A	NDA	N/A
Mn-54	N/A	N/A	6.60E-05	N/A
Fe-55	N/A	N/A	7.06E-04	N/A
Fe-59	N/A	N/A	NDA	N/A
Co-58	N/A	N/A	NDA	N/A
Co-60	N/A	N/A	8.21E-05	N/A
Zn-65	N/A	N/A	2.26E-06	N/A
Sr-89	N/A	N/A	NDA	N/A
Sr-90	N/A	N/A	2.33E-06	N/A
Zr/Nb-95	N/A	N/A	NDA	N/A
Ag-110m	N/A	N/A	NDA	N/A
Sb-124	N/A	N/A	NDA	N/A
Cs-137	N/A	N/A	1.42E-04	N/A
Total for period	N/A	N/A	1.00E-03	N/A

2. DISSOLVED AND ENTRAINED GASES - CI

2. DISSOLVED AND ENTRAINED GASES - CI				Sec. Sec. 4
Xe-133	N/A	N/A	NDA	10N/A
Xe-135	N/A	N/A	NDA	N/A
Total for period	N/A	N/A	NDA	N/A

Notes for Table 2.3-B:

- 1. N/A stands for not applicable.
- NDA stands for No Detectable Activity.
 LLDs for liquid radionuclides listed as NDA are as follows:

Strontium:	5E-08 µCi/mL
lodines:	1E-06 µCi/mL
Noble Gases:	1E-05 µCi/mL
All Others:	5E-07 µCi/mL

Table 2.3-B (continued) Pilgrim Nuclear Power Station Effluent and Waste Disposal Report Liquid Effluents July-December 2002

	Continuous	Mode	Batch	Mode
Nuclide Released	Jul-Sep 2002	Oct-Dec 2002	Jul-Sep 2002	Oct-Dec 2002

1. FISSION AND ACTIVATION PRODUCTS - Ci

Cr-51	N/A	N/A	N/A	N/A
Mn-54	N/A	N/A	N/A	N/A
Fe-55	N/A	N/A	N/A	N/A
Fe-59	N/A	N/A	N/A	N/A
Co-58	N/A	N/A	N/A	N/A
Co-60	N/A	N/A	N/A	N/A
Zn-65	N/A	N/A	N/A	N/A
Sr-89	N/A	N/A	N/A	N/A
Sr-90	N/A	N/A	N/A	N/A
Zr/Nb-95	N/A	N/A	N/A	N/A
Ag-110m	N/A	N/A	N/A	N/A
Sb-124	N/A	N/A	N/A	N/A
Cs-137	N/A	N/A	N/A	N/A
Total for period	N/A	N/A	N/A	N/A

2. DISSOLVED AND ENTRAINED GASES - Ci

Xe-133	N/A	N/A	N/A	N/A		
Xe-135	N/A	N/A	N/A	N/A		
Total for period	N/A	N/A	N/A	N/A		

Notes for Table 2.3-B:

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- N/A stands for not applicable.
 NDA stands for No Detectable Activity.
- 3. LLDs for liquid radionuclides listed as NDA are as follows:

Strontium:	5E-08 µCi/mL
lodines:	1E-06 µCi/mL
Noble Gases:	1E-05 µCi/mL
All Others:	5E-07 µCi/mL

3.0 METEOROLOGICAL DATA

1.

Meteorological data are summarized for the reporting period in Appendix A, in the standard joint frequency distribution format as given in NRC Regulatory Guide 1.21.

The predominant meteorological conditions observed during the annual reporting period can be summarized with their corresponding frequencies as follows:

- Stability Class: Class D, 31%
- Wind Direction (from): South-southwest, 15%
- 33-ft Wind Speed: 4-7 mph, 53%
- 220-ft Wind Speed: 13-18 mph, 36%

There were a number of instances when data collection from the 220-ft meteorological tower was not continuous. During the course of 2002, numerous problems were encountered with meteorological sensors and translator card electronics. In October 2002, a failure of the hard disk on the computer containing the meteorological database failed, resulting in a loss of major portions of data for the months of August, September, and October. Data recovery for the entire annual period was about 77% for the 33-ft level, and 63% for the 220-ft level of the tower. These data recovery values are well below the NRC's recommended annual recovery goal of 90%. Steps have been taken to perform backups of the database computer, as well as performing qualitative data screening on a weekly basis to identify malfunctioning sensors and facilitate more timely repairs.

4.0 MAXIMUM INDIVIDUAL DOSES

Doses to the maximum exposed individual resulting from radionuclides in effluents released offsite were calculated using methods presented in the PNPS Offsite Dose Calculation Manual (ODCM, Reference 2), NRC Regulatory Guide 1.109 (Reference 3), NRC Regulatory Guide 1.111 (Reference 4), and the Pilgrim Station Unit 1 Appendix I Evaluation (Reference 5). Maximum individual doses are calculated separately for: (1) noble gases in gaseous effluents, (2) particulates, iodines, and tritium in gaseous effluents; and, (3) liquid effluents. <u>Maximum</u> consumption and use factors for various pathways from Table E-5 of the PNPS ODCM are used for calculating the doses to the maximum exposed individual.

Information related to liquid and gaseous effluent releases are summarized Section 2 of this report. These effluent release data were used as input to computer programs to calculate the resulting doses. PNPS ODCM methodologies were used to calculate the dose contributions to the various organs in each age class from major exposure pathways.

4.1 Doses From Noble Gas Releases

Gaseous effluent release data presented in Tables 2.2-A, 2.2-B, and 2.2-C from this effluent release report were used as input to a dose assessment computer program to calculate radiation doses. These data include gaseous releases from the PNPS main stack, reactor building vent, and turbine building roof exhausters. Meteorological data obtained from the PNPS 220-foot meteorological tower during 2002 were also used as input to the "AEOLUS-3" computer program (Reference 7). This program was used to calculate the annual average atmospheric dispersion and deposition factors used in the dose assessment computer program to calculate maximum individual doses.

The maximum individual doses resulting from radioactive noble gases released in gaseous effluents are presented in Table 4.1 according to specific receptor locations. This table includes all noble gas doses for the individual calendar quarters and total calendar year.

Noble gases released in gaseous effluents from PNPS during 2002 resulted in a maximum total body dose of 0.016 mrem. The maximum skin dose was 0.25 mrem. Both of these doses occurred to a <u>hypothetical</u> individual, located at the shoreline approximately 0.10 kilometers NNE of the PNPS Reactor Building. These areas are under control of Entergy Nuclear. Doses to more "realistic" individuals at offsite locations would be lower than doses for these hypothetical site boundary individuals.

Table 4.1

Release Period	Gamma Air Dose (location)	Beta Air Dose (location)	Total Body Dose (location)	Skin Dose (location)
Jan-Mar	5.89E-03 mrad	7.63E-02 mrad	3.89E-03 mrem	6.23E-02 mrem
	(0.10 km NNE)	(0.10 km NNE)	(0.10 km NNE)	(0.10 km NNE)
Apr-Jun	7.50E-03 mrad	9.28E-02 mrad	4.95E-03 mrem	7.60E-02 mrem
	(0.10 km NNE)	(0.10 km NNE)	(0.10 km NNE)	(0.10 km NNE)
Jul-Sep	5.18E-03 mrad	6.47E-02 mrad	3.42E-03 mrem	5.29E-02 mrem
	(0.10 km NNE)	(0.10 km NNE)	(0.10 km NNE)	(0.10 km NNE)
Oct-Dec	5.33E-03 mrad	6.90E-02 mrad	3.52E-03 mrem	5.63E-02 mrem
	(0.10 km NNE)	(0.10 km NNE)	(0.10 km NNE)	(0.10 km NNE)
Jan-Dec	2.39E-02 mrad	3.03E-01 mrad	1.58E-02 mrem	2.48E-01 mrem
	(0.10 km NNE)	(0.10 km NNE)	(0.10 km NNE)	(0.10 km NNE)

Maximum Doses From Noble Gas Releases During 2002^(a)

^(a) All directions and distances are with respect to the reactor building vent.

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4.2 Doses From Gaseous Effluent Releases

Gaseous effluent release data presented in Tables 2.2-A, 2.2-B, and 2.2-C from this effluent release report were used as input to a doses assessment computer program to calculate radiation doses. These data include gaseous releases from the PNPS main stack, reactor building vent, and turbine building roof exhausters. Meteorological data obtained from the PNPS 220-foot meteorological tower during 2002 were also used as input to the "AEOLUS-3" computer program (Reference 7). This program was used to calculate the annual average atmospheric dispersion and deposition factors used in the dose assessment computer program to calculate maximum individual doses.

The maximum individual doses resulting from radioactive particulates, iodines, and tritium released in gaseous effluents are presented in Tables 4.2-A through 4.2-E. These tables cover the individual calendar quarters and the total calendar year, respectively. Doses resulting from releases of noble gases are addressed independently in the PNPS ODCM. Therefore, none of these tables for maximum individual doses include any dose contribution from noble gases. The presentation and analysis of doses resulting from noble gases are addressed in Section 4.1 of this report.

Tables 4.2-A through 4.2-E summarize the maximum total body and organ doses for the adult, teen, child, and infant age classes resulting from the major gaseous exposure pathways. These tables present the dose data according to specific receptor location and the exposure pathways assumed to occur at that location. For example, the second column of the tables presents the information for the <u>hypothetical</u> maximum-exposed at the most restrictive site boundary location, where only inhalation and ground deposition exposure pathways are assumed to occur. Since this is a shoreline location controlled by Entergy, the other pathways of garden vegetable production, milk production, and meat production are assumed not to occur. Doses for other offsite locations not under Entergy control, where other exposure pathways can and do occur, are presented in subsequent columns of the tables, and represent the potential maximum doses to individuals at these locations.

Radioactivity released in gaseous effluents from PNPS during 2002 resulted in a maximum total body dose (teen age class) of 2.6 mrem. The maximum organ dose (teen age class, thyroid) was 3.0 mrem. Both of these doses occurred to <u>hypothetical</u> individuals at the shoreline 0.11 kilometers NE of the PNPS Reactor Building, an area under Entergy control. For the more "realistic" individuals at offsite locations, the maximum total body dose was 0.13 mrem (child age class at a location 0.9 kilometers SE from the Reactor Building), while the maximum organ dose was 0.25 mrem (child thyroid at a location 0.9 kilometers SE from the Reactor Building, yielding vegetables).

Table 4.2-A

Maximum Individual Organ Dose at Receptor Location -- mrem From Gaseous Release Period: January-March 2002

Receptor:	Bound	Resident	Garden	Cow/Goat	Cow/Meat	Meat
Direction:	NE	NW	SE	WSW	W	S
Distance':	0.10 km	0.74 km	0.87 km	3.97 km	5.77 km	3.80 km
Pathway:	<u> Di</u>			DIVCG		
Age Class: A	Adult					
Bone	7.17E-03	7.32E-05	4.84E-03	8.13E-05	2.12E-05	3.98E-05
GI-LLI	6.10E-01	5.53E-03	1.96E-02	2.68E-03	1.04E-03	1.16E-03
Kidney	6.10E-01	5.53E-03	<u>1.94E-02</u>	2.69E-03	1.04E-03	1.16E-03
Liver	6.10E-01	5.53E-03	1.99E-02	2.72E-03	1.04E-03	1.16E-03
Lung	6.10E-01	5.54E-03	1.91E-02	2.68E-03	1.03E-03	1.15E-03
Thyroid	6.53E-01	5.90E-03	3.23E-02	4.20E-03	1.17E-03	1.33E-03
Total Body	6.09E-01	5.53E-03	1.97E-02	2.70E-03	1.04E-03	1.16E-03
Age Class: 1	Feen					
Bone	7.34E-03	7.46E-05	7.09E-03	1.35E-04	3.05E-05	5.66E-05
GI-LLI	6.15E-01	5.58E-03	2.19E-02	3.21E-03	1.13E-03	1.25E-03
Kidney	6.15E-01	5.59E-03	2.18E-02	3.24E-03	1.13E-03	1.25E-03
Liver	6.15E-01	5.58E-03	2.27E-02	3.28E-03	1.13E-03	1.26E-03
Lung	6.16E-01	5.59E-03	2.14E-02	3.21E-03	1.12E-03	1.25E-03
Thyroid	6.72E-01	6.07E-03	3.26E-02	5.54E-03	1.28E-03	1.40E-03
Total Body	6.15E-01	5.58E-03	2.19E-02	3.23E-03	1.13E-03	1.25E-03
Age Class: (Child	- C				
Bone	7.55E-03	7.64E-05	1.57E-02	3.16E-04	6.70E-05	1.24E-04
GI-LLI	5.44E-01	4.94E-03	3.03E-02	4.78E-03	1.59E-03	1.75E-03
Kidney	5.44E-01	4.94E-03	3.06E-02	4.84E-03	1.59E-03	1.76E-03
Liver	5.44E-01	4.94E-03	3.22E-02	4.92E-03	1.60E-03	1.77E-03
Lung	5.45E-01	4.95E-03	3.00E-02	4.78E-03	1.59E-03	1.75E-03
Thyroid	6.15E-01	5.55E-03	4.73E-02	9.39E-03	1.85E-03	1.98E-03
Total Body	5.44E-01	4.94E-03	3.05E-02	4.80E-03	1.59E-03	1.76E-03
Age Class: 1	nfant					
Bone	7.31E-03	7.44E-05	8.54E-04	3.56E-04	9.78E-06	7.77E-06
GI-LLI	3.16E-01	2.87E-03	3.04E-03	3.67E-03	1.87E-04	1.35E-04
Kidney	3.16E-01	2.87E-03	3.05E-03	3.77E-03	1.89E-04	1.35E-04
Liver	3.16E-01	2.87E-03	3.05E-03	3.93E-03	1.91E-04	1.35E-04
Lung	3.17E-01	2.88E-03	3.05E-03	3.69E-03	1.88E-04	1.35E-04
Thyroid	3.82E-01	3.43E-03	3.49E-03	1.45E-02	5.60E-04	1.64E-04
Total Body	3.16E-01	2.87E-03	3.04E-03	3.70E-03	1.88E-04	1.35E-04

¹ Distances are measured with respect to the reactor building vent.
 ² Pathway designations are as follows:

D = Deposition (Ground Plane)

I = Inhalation

V = Vegetable Garden M = Meat

C = Cow Milk

G = Goat Milk

³ Doses are conservative since it is unlikely for vegetables to be grown outside or for animals to be fed on pasture during winter months.

Table 4.2-B

Maximum Individual Organ Dose at Receptor Location -- mrem From Gaseous Release Period: April-June 2002

Receptor:	Bound	Resident	Garden	Cow/Goat	Cow/Meat	Meat
Direction:	NE	NW	SE	WSW	W	S
Distance ¹ :	0.10 km	0.74 km	0.87 km	3.97 km	5.77 km	3.80 km
Pathway ² :	DI	DI		DIVCG ³		DIVM ³
Age Class: A	Adult					
Bone	5.09E-04	4.76E-06	2.10E-03	2.93E-05	9.56E-06	1.80E-05
GI-LLI	4.68E-01	4.24E-03	1.45E-02	2.08E-03	8.03E-04	8.97E-04
Kidney	4.68E-01	4.24E-03	1.42E-02	2.08E-03	8.02E-04	8.95E-04
Liver	4.68E-01	4.24E-03	1.42E-02	2.08E-03	8.02E-04	8.94E-04
Lung	4.68E-01	4.24E-03	1.41E-02	2.07E-03	8.01E-04	8.94E-04
Thyroid	5.17E-01	4.66E-03	3.00E-02	3.82E-03	9.59E-04	1.09E-03
Total Body	4.68E-01	4.24E-03	1.42E-02	2.08E-03	8.02E-04	8.94E-04
Age Class: 7	Feen					
Bone	6.23E-04	5.73E-06	3.23E-03	4.89E-05	1.45E-05	2.71E-05
GI-LLI	4.72E-01	4.28E-03	1.62E-02	2.49E-03	8.73E-04	9.70E-04
Kidney	4.72E-01	4.28E-03	1.59E-02	2.50E-03	8.72E-04	9.68E-04
Liver	4.72E-01	4.28E-03	1.59E-02	2.49E-03	8.72E-04	9.68E-04
Lung	4.73E-01	4.28E-03	1.59E-02	2.48E-03	8.71E-04	9.67E-04
Thyroid	5.37E-01	4.83E-03	2.94E-02	5.14E-03	1.05E-03	1.14E-03
Total Body	4.72E-01	4.28E-03	1.60E-02	2.49E-03	8.72E-04	9.68E-04
Age Class: 0	Child					
Bone	7.67E-04	6.95E-06	7.67E-03	1.18E-04	3.43E-05	6.40E-05
GI-LLI	4.17E-01	3.78E-03	2.28E-02	3.71E-03	1.23E-03	1.36E-03
Kidney	4.17E-01	3.78E-03	2.26E-02	3.73E-03	1.23E-03	1.36E-03
Liver	4.17E-01	3.78E-03	2.25E-02	3.72E-03	1.23E-03	1.36E-03
Lung	4.17E-01	3.78E-03	2.25E-02	3.71E-03	1.23E-03	1.36E-03
Thyroid	4.98E-01	4.47E-03	4.33E-02	8.94E-03	1.53E-03	1.62E-03
Total Body	4.17E-01	3.78E-03	2.27E-02	3.72E-03	1.23E-03	1.36E-03
Age Class: I	nfant					
Bone	6.30E-04	5.78E-06	3.21E-05	1.16E-04	2.84E-06	4.24E-07
GI-LLI	2.40E-01	2.17E-03	1.73E-03	2.85E-03	1.43E-04	9.97E-05
Kidney	2.40E-01	2.18E-03	1.73E-03	2.89E-03	1.44E-04	9.99E-05
Liver	2.40E-01	2.18E-03	1.73E-03	2.89E-03	1.44E-04	9.98E-05
Lung	2.40E-01	2.18E-03	1.74E-03	2.85E-03	1.43E-04	1.00E-04
Thyroid	3.14E-01	2.81E-03	2.23E-03	1.51E-02	5.61E-04	1.31E-04
Total Body	2.40E-01	2.17E-03	1.73E-03	2.87E-03	1.43E-04	9.97E-05

¹ Distances are measured with respect to the reactor building vent. ² Pathway designations are as follows: D = Deposition (Ground Plane) I = Inhalation

- C = Cow Milk

G = Goat Milk

V = Vegetable Garden M = Meat

Table 4.2-C

Maximum Individual Organ Dose at Receptor Location -- mrem From Gaseous Release Period: July-September 2002

Receptor:	Bound	Resident	Garden	Cow/Goat	Cow/Meat	Meat
Direction:	NE	NW	SE	WSW	W	S
Distance':	0.10 km	0.74 km	0.87 km	3.97 km	5.77 km	3.80 km
Pathway ² :	[DI	<u>Di</u>				
Age Class: A	Adult	<u> </u>			<u> </u>	
Bone	1.06E-03	1.00E-05	3.14E-03	4.43E-05	1.39E-05	2.61E-05
GI-LLI	5.88E-01	5.33E-03	1.83E-02	2.61E-03	1.01E-03	<u>1.13E-03</u>
Kidney	5.89E-01	5.34E-03	1.80E-02	2.62E-03	1.01E-03	1.12E-03
Liver	5.88E-01	5.33E-03	1.79E-02	2.61E-03	1.01E-03	1.12E-03
Lung	5.89E-01	5.34E-03	1.78E-02	2.60E-03	1.01E-03	1.12E-03
Thyroid	6.88E-01	6.18E-03	5.32E-02	6.13E-03	1.32E-03	1.51E-03
Total Body	5.88E-01	5.33E-03	1.79E-02	2.61E-03	1.01E-03	1.12E-03
Age Class: 7	Feen					
Bone	1.27E-03	1.18E-05	4.80E-03	7.39E-05	2.10E-05	3.90E-05
GI-LLI	5.93E-01	5.38E-03	2.06E-02	3.13E-03	1.10E-03	1.22E-03
Kidney	5.94E-01	5.39E-03	2.01E-02	3.15E-03	1.10E-03	1.22E-03
Liver	5.94E-01	5.38E-03	2.01E-02	3.14E-03	1.09E-03	1.22E-03
Lung	5.95E-01	5.39E-03	2.00E-02	3.12E-03	1.09E-03	1.21E-03
Thyroid	7.24E-01	6.49E-03	5.00E-02	8.50E-03	1.44E-03	1.55E-03
Total Body	5.93E-01	5.38E-03	2.01E-02	3.13E-03	1.09E-03	1.22E-03
Age Class: (Child	· · · · · · · · · · · · · · · · · · ·	· · · · ·			
Bone	1.53E-03	1.40E-05	1.13E-02	1.78E-04	4.93E-05	9.15E-05
GI-LLI	5.24E-01	4.75E-03	2.87E-02	4.66E-03	1.55E-03	1.71E-03
Kidney	5.25E-01	4.76E-03	2.85E-02	4.71E-03	1.55E-03	1.71E-03
Liver	5.24E-01	4.75E-03	2.84E-02	4.69E-03	1.55E-03	1.71E-03
Lung	5.26E-01	4.76E-03	2.82E-02	4.65E-03	1.55E-03	1.71E-03
Thyroid	6.86E-01	6.12E-03	7.45E-02	1.52E-02	2.14E-03	2.21E-03
Total Body	5.24E-01	4.75E-03	2.86E-02	4.68E-03	1.55E-03	1.71E-03
Age Class: I	nfant					
Bone	1.29E-03	1.20E-05	7.57E-05	1.84E-04	4.79E-06	8.55E-07
GI-LLI	3.02E-01	2.73E-03	2.21E-03	3.58E-03	1.79E-04	1.25E-04
Kidney	3.02E-01	2.74E-03	2.21E-03	3.67E-03	1.82E-04	1.26E-04
Liver	3.02E-01	2.74E-03	2.21E-03	3.66E-03	1.82E-04	1.26E-04
Lung	3.03E-01	2.75E-03	2.22E-03	3.58E-03	1.80E-04	1.26E-04
Thyroid	4.50E-01	4.00E-03	3.20E-03	2.83E-02	1.01E-03	1.82E-04
Total Body	3.02E-01	2.74E-03	2.21E-03	3.61E-03	1.80E-04	1.25E-04

¹ Distances are measured with respect to the reactor building vent. ² Pathway designations are as follows: D = Deposition (Ground Plane) I = Inhalation

- G = Goat Milk
- V = Vegetable GardenM = Meat

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C = Cow Milk

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Table 4.2-D

Maximum Individual Organ Dose at Receptor Location -- mrem From Gaseous Release Period: October-December 2002

Receptor:	Bound	Resident	Garden	Cow/Goat	Cow/Meat	Meat
Direction:	10 ± 0.10 km	0.74 km	0 97 km	3 07 km	5 77 km	3 90 km
Pathway ²					$DIVCM^3$	$DIVM^3$
Ago Closer						
Age Class: A			2 105 02	4 105 05	1 005 05	
Bone	1.09E-03	1.03E-05	3.13E-03	4.132-05		2.49E-05
GI-LLI	9.40E-01	8.52E-03	2.91E-02	4.16E-03	1.61E-03	1.79E-03
Klaney	9.40E-01	8.52E-03	2.85E-02	4.17E-03	1.61E-03	1.79E-03
Liver	9.40E-01	8.52E-03	2.84E-02	4.16E-03	<u>1.61E-03</u>	1.79E-03
Lung	9.42E-01	8.54E-03	2.83E-02	4.15E-03	1.61E-03	1.79E-03
Thyroid	1.03E+00	9.31E-03	5.89E-02	7.10E-03	1.87E-03	2.11E-03
Total Body	9.39E-01	8.52E-03	2.85E-02	4.16E-03	1.61E-03	1.79E-03
Age Class: 7	Feen		r			
Bone	<u>1.31E-03</u>	1.21E-05	4.75E-03	6.86E-05	1.99E-05	3.69E-05
GI-LLI	9.48E-01	8.60E-03	<u>3.26E-02</u>	4.99E-03	1.75E-03	_1.94E-03
Kidney	9.49E-01	8.60E-03	3.20E-02	5.00E-03	1.75E-03	1.94E-03
Liver	9.48E-01	8.60E-03	3.19E-02	4.99E-03	1.75E-03	1.93E-03
Lung	9.52E-01	8.63E-03	3.19E-02	4.98E-03	1.75E-03	1.94E-03
Thyroid	1.07E+00	9.63E-03	5.78E-02	9.47E-03	2.04E-03	2.22E-03
Total Body	9.48E-01	8.59E-03	3.20E-02	4.99E-03	1.75E-03	1.94E-03
Age Class: 0	Child					
Bone	1.59E-03	1.45E-05	1.12E-02	1.65E-04	4.65E-05	8.64E-05
GI-LLI	8.37E-01	7.59E-03	4.56E-02	7.44E-03	2.47E-03	2.73E-03
Kidney	8.38E-01	7.60E-03	4.53E-02	7.47E-03	2.47E-03	2.72E-03
Liver	8.38E-01	7.59E-03	4.52E-02	7.45E-03	2.47E-03	2.72E-03
Lung	8.41E-01	7.62E-03	4.51E-02	7.43E-03	2.47E-03	2.72E-03
Thyroid	9.89E-01	8.88E-03	8.51E-02	1.63E-02	2.97E-03	3.14E-03
Total Body	8.37E-01	7.59E-03	4.55E-02	7.45E-03	2.47E-03	2.73E-03
Age Class: 1	Age Class: Infant					
Bone	1.33E-03	1.23E-05	7.64E-05	1.67E-04	4.37E-06	8.31E-07
GI-LLI	4.82E-01	4.37E-03	3.49E-03	5.71E-03	2.86E-04	1.99E-04
Kidney	4.82E-01	4.37E-03	3.49E-03	5.78E-03	2.88E-04	2.00E-04
Liver	4.82E-01	4.37E-03	3.49E-03	5.77E-03	2.88E-04	2.00E-04
Lung	4.85E-01	4.40E-03	3.51E-03	5.71E-03	2.87E-04	2.01E-04
Thyroid	6.22E-01	5.56E-03	4.42E-03	2.64E-02	9.77E-04	2.51E-04
Total Body	4.82E-01	4.37E-03	3.49E-03	5.74E-03	2.87E-04	1.99E-04

¹ Distances are measured with respect to the reactor building vent.
 ² Pathway designations are as follows:

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- D = Deposition (Ground Plane)C = Cow Milk
- I = InhalationG = Goat Milk
- V = Vegetable GardenM = Meat

³ Doses are conservative since it is unlikely for vegetables to be grown outside or for animals to be fed on pasture during winter months.

Table 4.2-E

Maximum Individual Organ Dose at Receptor Location -- mrem From Gaseous Release Period: January-December 2002

Receptor:	Bound	Resident	Garden	Cow/Goat	Cow/Meat	Meat
Direction:		0.74 km	SE 0.07 km	2.07.10		5 2.00 km
Distance.				13.97 KII	5.77 KIII	
Falliway.						
Age Class: A		0.005.05	1 005 00	1 005 04	5 005 05	1.005.04
Bone	9.84E-03	9.83E-05	1.32E-02	1.96E-04	5.80E-05	1.09E-04
GI-LLI	2.61E+00	2.36E-02	8.14E-02	1.15E-02	4.46E-03	4.97E-03
Kidney	2.61E+00	2.36E-02	8.01E-02	1.16E-02	4.45E-03	4.96E-03
Liver	2.61E+00	2.36E-02	8.04E-02	1.16E-02	4.45E-03	4.97E-03
Lung	2.61E+00	2.37E-02	7.93E-02	1.15E-02	4.45E-03	4.96E-03
Thyroid	2.89E+00	2.61E-02	1.74E-01	2.12E-02	5.32E-03	6.03E-03
Total Body	2.60E+00	2.36E-02	8.03E-02	1.15E-02	4.45E-03	4.96E-03
Age Class: 7	leen					
Bone	1.05E-02	1.04E-04	1.99E-02	3.26E-04	8.60E-05	1.60E-04
<u>GI-LLI</u>	2.63E+00	2.38E-02	9.13E-02	1.38E-02	4.84E-03	5.38E-03
Kidney	2.63E+00	2.39E-02	8.99E-02	1.39E-02	4.84E-03	5.37E-03
Liver	2.63E+00	2.38E-02	9.06E-02	1.39E-02	4.84E-03	5.37E-03
Lung	2.64E+00	2.39E-02	8.91E-02	1.38E-02	4.84E-03	5.36E-03
Thyroid	3.00E+00	2.70E-02	1.70E-01	2.86E-02	5.81E-03	6.30E-03
Total Body	2.63E+00	2.38E-02	9.00E-02	1.38E-02	4.84E-03	5.37E-03
Age Class: C	Child				. 11	2 · • •
Bone	1.14E-02	1.12E-04	4.59E-02	7.76E-04	1.97E-04	3.66E-04
GI-LLI	2.32E+00	2.11E-02	1.27E-01	2.06E-02	6.83E-03	7.56E-03
Kidney	2.32E+00	2.11E-02	1.27E-01	2.08E-02	6.84E-03	7.56E-03
Liver	2.32E+00	2.11E-02	1.28E-01	2.08E-02	6.84E-03	7.57E-03
Lung	2.33E+00	2.11E-02	1.26E-01	2.06E-02	6.83E-03	7.55E-03
Thyroid	2.79E+00	2.50E-02	2.50E-01	4.98E-02	8.49E-03	8.95E-03
Total Body	2.32E+00	2.11E-02	1.27E-01	2.06E-02	6.83E-03	7.56E-03
Age Class: In	Age Class: Infant					
Bone	1.06E-02	1.04E-04	1.04E-03	8.22E-04	2.18E-05	9.88E-06
GI-LLI	1.34E+00	1.21E-02	1.05E-02	1.58E-02	7.95E-04	5.59E-04
Kidney	1.34E+00	1.22E-02	1.05E-02	1.61E-02	8.04E-04	5.60E-04
Liver	1.34E+00	1.22E-02	1.05E-02	1.62E-02	8.05E-04	5.60E-04
Lung	1.35E+00	1.22E-02	1.05E-02	1.58E-02	7.97E-04	5.62E-04
Thyroid	1.77E+00	1.58E-02	1.33E-02	8.42E-02	3.11E-03	7.28E-04
Total Body	1.34E+00	1.21E-02	1.05E-02	1.59E-02	7.98E-04	5.60E-04

¹ Distances are measured with respect to the reactor building vent. ² Pathway designations are as follows: D = Deposition (Ground Plane) 1 = Inhalation

- C = Cow Milk
- G = Goat Milk
- V = Vegetable Garden M = Meat
- ³ Doses are conservative since it is unlikely for vegetables to be grown outside or for animals to be fed on pasture during winter months.

4.3 Doses From Liquid Effluent Releases

Liquid effluent release data presented in Tables 2.3-A and 2.3-B were used as input to the dose assessment computer program to calculate radiation doses. The maximum individual doses resulting from radionuclides released in liquid effluents are presented in Tables 4.3-A through 4.3-E. These tables cover the individual calendar quarters and the total calendar year, respectively.

Tables 4.3-A through 4.3-E summarize the maximum total body and organ doses for the adult, teen, and child age classes resulting from the major liquid exposure pathways. NRC Regulatory Guide 1.109 does not recognize the infant age class as being exposed to the liquid effluent pathways. Therefore, doses for this age class are not included in any of the tables.

It should be noted that doses calculated for the entire year might not equal the sum of the doses for the individual quarters. Doses from liquid effluents are based on the concentration (activity divided by volume) of radionuclides released in the effluent, as prescribed by the NRC in Regulatory Guide 1.109. If a larger proportion of activity is released with a relatively smaller volume of dilution water during a given quarter, the resulting concentration for that quarter will be higher than concentrations from other quarters. This will result in a proportionally higher dose for that quarter. However, when that quarter's activity values are included in the annual sum, and divided by the total annual dilution flow, the resulting dose contribution will be smaller. In such a situation, the annual dose will actually be less than the sum of the individual quarterly doses.

Radioactivity released in liquid effluents from PNPS during 2002 resulted in a maximum total body dose (child age class) of 0.000042 mrem. The maximum organ dose (child age class, bone) was 0.00022 mrem.

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Table 4.3-A

	Age Class Organ Dose - mrem					
Organ	Adult	Teen	Child*			
Bone	1.64E-04	1.61E-04	2.26E-04			
GI-LLI	8.33E-05	6.42E-05	2.73E-05			
Kidney	7.29E-06	1.16E-05	6.16E-06			
Liver	1.22E-04	1.23E-04	1.27E-04			
Lung	6.18E-05	7.33E-05	6.68E-05			
Thyroid	1.24E-06	6.12E-06	1.36E-06			
Total Body	3.41E-05	3.64E-05	4.23E-05			

Maximum Individual Organ Doses -- mrem From Liquid Release Period: January-March 2002

* These doses are conservative since the same usage factor was applied for each quarter. In reality, it is unlikely that anyone would be swimming or boating during these months. However, the resulting dose is considerably lower than those from other pathways and does not contribute much to the total dose.

Table 4.3-B

Maximum Individual Organ Doses -- mrem From Liquid Release Period: April-June 2002

No Liquid Effluent Discharges Occurred During This Period

Table 4.3-C

Maximum Individual Organ Doses -- mrem From Liquid Release Period: July-September 2002

No Liquid Effluent Discharges Occurred During This Period

Table 4.3-D

Maximum Individual Organ Doses -- mrem From Liquid Release Period: October-December 2002

No Liquid Effluent Discharges Occurred During This Period
Table 4.3-E

	Age Class Organ Dose - mrem				
Organ	Adult Teen		Child*		
Bone	1.61E-04	1.58E-04	2.22E-04		
GI-LLI	8.20E-05	6.32E-05	2.69E-05		
Kidney	7.18E-06	1.14E-05	6.06E-06		
Liver	1.20E-04	1.21E-04	1.25E-04		
Lung	6.09E-05	7.22E-05	6.57E-05		
Thyroid	1.22E-06	6.03E-06	1.34E-06		
Total Body	3.36E-05	3.58E-05	4.16E-05		

Maximum Individual Organ Doses -- mrem From Liquid Release Period: January-December 2002

* These doses are conservative since the same usage factor was applied for each quarter. In reality, it is unlikely that anyone would be swimming or boating during these entire year. However, the resulting dose is considerably lower than those from other pathways and does not contribute much to the total dose.

5.0 OFFSITE AMBIENT RADIATION MEASUREMENTS

The PNPS ODCM does not contain control limits related specifically to offsite ambient radiation exposure. However, Regulatory Guide 1.21 (Reference 1) recommends calculation of ambient radiation exposure as part of the overall assessment of radiological impact on man.

Thermoluminescent dosimeters (TLDs) are located at 83 sites beyond the boundary of the PNPS restricted/protected area. A number of these TLDs are located within the <u>site</u> boundary, on Entergy property in close proximity to the station proper. The TLDs are collected on a quarterly basis and used to calculate the ambient radiation exposure in milliRoentgen (mR) over the exposure period. These TLDs are grouped into four zones of increasing distance from the station. Average exposure values for each of these zones were calculated for each calendar quarter and the total year. The average exposure values (mR) for the four zones are presented in Table 5.0.

In addition to responding to ambient radiation exposure, TLDs will also record radiation resulting from noble gases (plume and immersion exposure), particulate materials deposited on the ground, cosmic rays from outer space, and from naturally-occurring radioactivity in the soil and air. Typically, the exposure from cosmic rays and other natural radioactivity components is about 40 to 70 mR/year. As calculated in Sections 4.1 and 4.2 of this report, the ambient radiation component of doses from PNPS effluent emissions are below 1 mrem/yr and would not be discernible above the natural radiation exposure levels.

The major source of ambient radiation exposure from PNPS results from high-energy gamma rays emitted from nitrogen-16 (N-16) contained in steam flowing through the turbine. Although the N-16 is enclosed in the process lines and turbine and is <u>not</u> released into the environment, the ambient radiation exposure and sky shine from this contained source accounts for the majority of the radiation dose, especially in close proximity to the station. Other sources of ambient radiation exposure include radiation emitted from contained radioactive materials and/or radwaste at the facility. Despite these sources of ambient radiation exposure at PNPS, increases in exposure from ambient radiation are typically not observable above background radiation levels at locations beyond Entergy controlled property.

The average exposure values presented in Table 5.0 appear to indicate an elevation in ambient exposures in Zone 1, those TLDs within 2 miles of PNPS. Most of this apparent elevation is due to increases in exposure levels measured at TLD locations on Entergy property in close proximity to the station proper. For example, the annual exposure at TLD location OA, located at the Overlook Area near the PNPS Health Club (I&S Building), was 637 mR for the entire year. This location is immediately adjacent to the station proper and overlooks the turbine building, therefore receiving the highest direct ambient and sky shine exposure. When the near-site TLDs (those located within 0.6 km of the Reactor Building) are removed from the calculation of averages, the mean annual exposure in Zone 1 falls from 90.6 \pm 92.1 mR/yr to 57.7 \pm 7.0 mR/yr. Such a corrected dose is not statistically different from the Zone 4 average of 56.6 \pm 8.2 mR/yr.

Although the annual exposure at TLD location OA was 580 mR above the average Zone 4 exposure rate, members of the general public do not continuously occupy this area. When adjusted for such occupancy, a hypothetical member of the public who was at this location for 40 hours per year would only receive an incremental dose of 2.7 mrem over natural background radiation levels. At the nearest residence 0.80 kilometers (0.5 miles) southeast of the PNPS Reactor Building, the annual exposure was calculated as being 55.3 ± 7.2 mR, which compares quite well to the Zone 4 annual average of 56.6 ± 8.2 mR based on continuous occupancy at this location.

It must be emphasized that the projected ambient exposures discussed on the previous page are calculated to occur to a maximum-exposed <u>hypothetical</u> individual. Even though conservative assumptions are made in the projection of these dose consequences, all of the projected doses are well below the NRC dose limit of 100 mrem/yr specified in 10CFR20.1301, as well as the EPA dose limit of 25 mrem/yr specified in 40CFR190. Both of these limits are to be applied to <u>real</u> members of the general public, so the fact that the dose to the <u>hypothetical</u> maximum-exposed individual is within the limits ensures that any dose received by a real member of the public would be smaller and well within any applicable limit.

In 1994, Pilgrim Station opened the old training facility (I&S Building) overlooking the plant as a health club for its employees. This site is immediately adjacent to the protected area boundary near monitoring location OA and receives appreciable amounts of direct ambient and sky shine exposure from the turbine building. Although most personnel using this facility are employees of Entergy, they are considered to be members of the public. Due to their extended presence in the facility (500 hr/yr, assuming utilization of the facility for 2 hr/day, 5 days a week, for 50 weeks/yr), these personnel represent the most conservative case in regards to ambient radiation exposure to a member of the public. Their annual incremental radiation dose above background during 2002 is estimated as being about 11.5 mrem, based on the average exposure measured by three TLDs in the building.

The exposures measured by these three TLDs located in the health club would also include any increase in ambient radiation resulting from noble gases and/or particulate activity deposited on the ground from gaseous releases. However, they would not indicate any internal dose received by these contractor personnel from inhalation of small amounts of PNPS-related radioactivity contained in the air. An environmental air sampler located immediately adjacent to the health club did not indicate any PNPS-related activity during 2002. Dose calculations performed in the same manner as those outlined in Section 4.2 yielded a projected total body dose to the maximum-exposed individual (500 hr/yr exposure) of about 0.008 mrem, resulting from inhalation.

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Again, it must be emphasized that the above described exposures were received by personnel who are employees of Entergy, working in a facility on property under the ownership and control of Entergy. Since this exposure was received within the owner-controlled area, it is not used for comparison to the annual dose limit of 25 mrem/yr specified in 40CFR190. This regulation expressly applies to areas at or beyond the owner-controlled property, and is not applicable in this situation. As stated earlier, TLDs at and beyond the site boundary do not indicate elevated ambient radiation levels resulting from the operation of Pilgrim Station.

In response to the September 11, 2001 terrorism event, access to areas in the immediate vicinity of Pilgrim Station by members of the general public has been discontinued. A number of National Guard troops have been posted at Pilgrim Station to patrol the owner-controlled areas beyond the protected area. However, since these individuals are not employees of Pilgrim Station, they are considered to be members of the public for dose assessment purposes. Considering that their location is not fixed and they are patrolling areas within the site boundary, their annual exposure was estimated based on the average of those TLDs between the protected area fence and site boundary. The maximum dose received by a member of the National Guard is estimated to be about 11.5 mrem. Inhalation doses for National Guard troops, calculated in the same manner as that described above, were calculated at about 0.03 mrem.

Although some of the TLDs in close proximity to PNPS indicate increases in exposure levels from ambient radiation, such increases are localized to areas under Entergy control. For members of the general public who are not employed or contracted with Entergy and are accessing Entergy controlled areas (e.g., parking lots, etc.), such increases in dose from ambient radiation exposure are estimated as being less than 12 mrem/year.

Table 5.0

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	Average Exposure ± Standard Deviation: mR/period				
Exposure Period	Zone 1* 0-3 km	Zone 2 3-8 km	Zone 3 8-15 km	Zone 4 >15 km	
Jan-Mar	23.4 ± 22.6	13.0 ± 1.9	13.3 ± 1.7	14.3 ± 2.1	
Apr-Jun	21.7 ± 23.2	11.7 ± 2.0	11.9 ± 1.6	13.1 ± 2.0	
Jul-Sep	23.4 ± 22.8	13.3 ± 2.0	14.5 ± 1.4	15.3 ± 2.1	
Oct-Dec	22.0 ± 24.1	13.6 ± 1.8	12.6 ± 1.2	13.8 ± 1.8	
Jan-Dec	90.6 ± 92.1**	51.6 ± 8.1	52.2 ± 6.8	56.6 ± 8.2	

Average TLD Exposures By Distance Zone During 2002

- * Zone 1 extends from the PNPS restricted/protected area boundary outward to 3 kilometers (2 miles), and includes several TLDs located within the site boundary.
- ** When corrected for TLDs located within the site boundary, the Zone 1 annual average is calculated to be $57.7 \pm 7.0 \text{ mR/yr}$.

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6.0 PERCENT OF ODCM EFFLUENT CONTROL LIMITS

The PNPS ODCM contains dose and concentration limits for radioactive effluents. In addition, the effluent controls specified ensure that radioactive releases are maintained as low as reasonably achievable. The percentage of the PNPS ODCM Control limit values were determined from doses calculated in Section 4, the effluent releases summarized in Section 2, and the ODCM Control limits/objectives listed in Tables 6.1 and 6.2.

The percent of applicable control limit values are provided to supplement the information provided in the Section 2 of this report. The format for the percent of applicable limits is modified from that prescribed in Regulatory Guide 1.21 (Reference 1) to accommodate the Radioactive Effluents Technical Specifications (RETS) that became effective March 01, 1986. The percentages have been grouped according to whether the releases were via liquid or gaseous effluent pathways.

6.1 Gaseous Effluent Releases

Dose-based effluent controls related to exposures arising from gaseous effluent releases are presented in Table 6.1. The maximum quarterly air doses and annual whole body doses listed in Table 4.1 were used to calculate the percentage values shown in Table 6.1. All doses resulting from noble gas exposure were a small percentage of the applicable effluent control.

Organ dose limits for the maximum-exposed individual from radioactive particulates, iodines, and tritium from the PNPS ODCM are also shown in Table 6.1. The maximum quarterly and annual organ doses from Tables 4.2-A through 4.2-E were used to calculate the percentages shown in Table 6.1. The resulting organ doses from Pilgrim Station's gaseous releases during 2002 were a small percentage of the corresponding effluent control.

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Table 6.1

Percent of ODCM Effluent Control Limits for Gaseous Effluent Releases During 2002

A.	Instantaneous Dose Rate Limit - Noble Gases PNPS ODCM Control 3.3.1.a Limit: 500 mrem/yr Total Body Dose				
	<u>Period</u>	<u>Value - mrem/yr</u>	Fraction of Limit		
	January-December	1.58E-02	3.16E-03%		
В.	Instantaneous Dose Rate Limit - Noble Gases PNPS ODCM Control 3.3.1.a Limit: 3000 mrem/yr Skin Dose				
	<u>Period</u>	<u>Value - mrem/yr</u>	Fraction of Limit		
	January-December	2.48E-01	8.27E-03%		
C.	Instantaneous Dose Rate Limit - PNPS ODCM Control 3.3 Limit: 1500 mrem/yr Orga	Particulates, Iodines, & Tritium 1.b an Dose			
	<u>Period</u>	<u>Value - mrem/yr</u>	Fraction of Limit		
	January-December	3.00E+00	2.00E-01%		
D.	Quarterly Dose Objective - Noble PNPS ODCM Control 3.3. Objective: 5 mrad Gamm	Gas Gamma Air Dose 2.a a Air Dose			
	<u>Period</u>	<u>Value – mrad</u>	Fraction of Limit		
	January-March	5.89E-03	1.18E-01%		
	April-June	7.50E-03	1.50E-01%		
	July-September	5.18E-03	1.04E-01%		
	October-December	5.33E-03	1.07E-01%		
E.	Annual Dose Objective - Noble Gas Gamma Air Dose PNPS ODCM Control 3.3.2.b Objective: 10 mrad Gamma Air Dose				
	<u>Period</u>	<u>Value - mrad/yr</u>	Fraction of Limit		
	January-December	2.39E-02	2.39E-01%		

Percent of ODCM Effluent Control Limits for Gaseous Effluent Releases During 2002

F.	Quarterly Dose Objective - Noble Gas Beta Air Dose PNPS ODCM Control 3.3.2.a Objective: 10 mrad Beta Air Dose			
	Period January-March April-June July-September October-December	<u>Value - mrad</u> 7.63E-02 9.28E-02 6.47E-02 6.90E-02	Fraction of Limit 7.63E-01% 9.28E-01% 6.47E-01% 6.90E-01%	
G.	Annual Dose Objective - Not PNPS ODCM Contro Objective: 20 mrad E	ole Gas Beta Air Dose 3.3.2.b Beta Air Dose		
	<u>Period</u> January-December	<u>Value - mrad/yr</u> 3.03E-01	Fraction of Limit 1.52E+00%	
H.	Quarterly Dose Objective - P PNPS ODCM Contro Objective: 7.5 mrem	articulates, Iodines, & Tritium 3.3.3.a Organ Dose		
	<u>Period</u> January-March April-June July-September October-December	<u>Value - mrem</u> 6.72E-01 5.37E-01 7.24E-01 1.07E+00	Fraction of Limit 8.96E+00% 7.16E+00% 9.65E+00% 1.43E+01%	
Ι.	Annual Dose Objective - Par PNPS ODCM Contro Objective: 15 mrem	ticulates, Iodines, & Tritium 3.3.3.b Organ Dose		
	<u>Period</u> January-December	<u>Value - mrem/yr</u> 3.00E+00	Fraction of Limit 2.00E+01%	

6.2 Liquid Effluent Releases

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Liquid effluent concentration limits and dose objectives from the PNPS ODCM are shown in Table 6.2. The quarterly average concentrations from Table 2.3-A were used to calculate the percent concentration limits. The maximum quarterly and annual whole body and organ doses from Tables 4.3-A through 4.3-E were used to calculate the percentages shown in Table 6.2. The resulting concentration and doses from Pilgrim Station's liquid releases during 2002 were a very small percentage of the corresponding effluent control.

Table 6.2

Percent of ODCM Effluent Control Limits for Liquid Effluent Releases During 2002

A.	Fission and Activation Product Effluent Concentration Limit PNPS ODCM Control 3.2.1 Limit: 10CFR20 Appendix B, Table 2, Column 2 Value			
	<u>Period</u>	<u>Value - μCi/mL</u>	<u>Fraction of Limit</u>	
	January-March	2.86E-09	5.24E-02%	
	April-June	0.00E+00	0.00E+00%	
	July-September	0.00E+00	0.00E+00%	
	October-December	0.00E+00	0.00E+00%	
В.	Tritium Average Concentrati PNPS ODCM Contro Limit: 1.0E-03 μCi/m	on Limit I 3.2.1 L		
	<u>Period</u>	<u>Value - μCi/mL</u>	Fraction of Limit	
	January-March	8.39E-07	8.39E-02%	
	April-June	0.00E+00	0.00E+00%	
	July-September	0.00E+00	0.00E+00%	
	October-December	0.00E+00	0.00E+00%	
C.	Dissolved and Entrained No PNPS ODCM Contro Limit: 2.0E-04 μCi/ml	ble Gases Concentration Limit I 3.2.1		
	<u>Period</u>	<u>Value - μCi/mL</u>	<u>Fraction of Limit</u>	
	January-March	NDA		
	April-June	0.00E+00	0.00E+00%	
	July-September	0.00E+00	0.00E+00%	
	October-December	0.00E+00	0.00E+00%	

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Percent of ODCM Effluent Control Limits for Liquid Effluent Releases During 2002

D.	Quarterly Total Body Dose Objective PNPS ODCM Control 3.2.2.a Objective: 1.5 mrem Total Body Dose			
	<u>Period</u> January-March April-June July-September October-December	<u>Value - mrem</u> 4.23E-05 0.00E+00 0.00E+00 0.00E+00	Fraction of Limit 2.82E-03% 0.00E+00% 0.00E+00% 0.00E+00%	
E.	Annual Total Body Dose Obj PNPS ODCM Contro Objective: 3 mrem T	ective I 3.2.2.b otal Body Dose		
	Period January-December	<u>Value - mrem</u> 4.16E-05	Fraction of Limit 1.39E-03%	
F.	Quarterly Organ Dose Object PNPS ODCM Contro Objective: 5 mrem O	tive I 3.2.2.a Irgan Dose	ja Karato Serega Karata Serena	
F.	Quarterly Organ Dose Object PNPS ODCM Contro Objective: 5 mrem O <u>Period</u> January-March April-June July-September October-December	tive I 3.2.2.a Irgan Dose <u>Value - mrem</u> 2.26E-04 0.00E+00 0.00E+00 0.00E+00	Fraction of Limit 4.52E-03% 0.00E+00% 0.00E+00% 0.00E+00%	
F. G.	Quarterly Organ Dose Object PNPS ODCM Contro Objective: 5 mrem O <u>Period</u> January-March April-June July-September October-December Annual Organ Dose Objectiv PNPS ODCM Contro Objective: 10 mrem o	tive I 3.2.2.a Irgan Dose <u>Value - mrem</u> 2.26E-04 0.00E+00 0.00E+00 0.00E+00 0.00E+00 1 3.2.2.b Organ Dose	Fraction of Limit 4.52E-03% 0.00E+00% 0.00E+00% 0.00E+00%	

3. RADIOACTIVE WASTE DISPOSAL DATA

Radioactive wastes which were shipped offsite for processing and disposal during the reporting period are described in Table 3, in the standard NRC Regulatory Guide 1.21 format.

The total quantity of radioactivity in Curies and the total volume in cubic meters are summarized in Table 3 for the following waste categories:

- Spent resins, filter sludges, and evaporator bottoms;
- Dry compressible wastes, contaminated equipment, etc.;
- Irradiated components, control rods, etc.; and,
- Other.

During the reporting period approximately 27.8 cubic meters of spent resins, filter sludges, etc., containing a total activity of about 168 Curies were shipped from PNPS for processing and disposal. Dry compressible wastes and contaminated equipment shipped during the period totaled 222 cubic meters and contained 2.24 Curies of radioactivity. No irradiated components were shipped during the reporting period.

Estimates of major radionuclides, those comprising greater than 1% of the total activity in each waste category shipped, are listed in Table 3. There were 4 shipments to Oak Ridge, TN (GTS Duratek,) and 5 shipments to Erwin, TN (Studsvik).

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Table 3 Pilgrim Nuclear Power Station Effluent and Waste Disposal Report Solid Waste and Irradiated Fuel Shipments January-June 2002

A. SOLID WASTE SHIPPED OFFSITE FOR BURIAL OR DISPOSAL (Not irradiated fuel)

1. Estimate of volume and activity content by type of waste

	Jan-June 2002		
Type of waste	Volume - m ³	Curies	Total Error
a. Spent resins, filters, filter sludges, evaporator bottoms, etc.	1.65E+01	1.28E+02	± 25%
 b. Dry compressible waste, contaminated equipment, etc. 	2.22E+02	2.24E+00	± 25%
c. Irradiated components, control rods, etc.	None	None	N/A
d. Other (describe)	None	None	N/A

2. Estimate of major nuclide composition by type of waste¹

Type of waste	Radionuclide	Abundance	Total Error
a. Spent resins, filters, filter sludges,	Mn-54	9.00E+00%	± 25%
evaporator bottoms, etc.	Fe-55	1.40E+01%	± 25%
	Co-60	3.00E+01%	± 25%
	Cs-137	4.00E+01%	± 25%
	<u></u>	<u> </u>	<u> </u>
b. Dry compressible waste, contaminated	Mn-54	9.78E+00%	± 25%
equipment, etc.	Fe-55	7.94E+01%	± 25%
	Co-60	6.30E+00%	± 25%
			<u></u>
c. Irradiated components, control rods, etc.	None	None	<u>N/A</u>
d. Other (describe)	None	None	N/A

"Major" is defined as any radionuclide comprising >1% of the total activity in the waste category.

3. Solid Waste Disposition

Number of Shipments	Mode of Transportation	Destination
3	Tractor-trailer	Studsvik, ² Erwin, TN
4	Tractor-trailer	GTS Duratek, Oak Ridge, TN

² This processor provides volume reduction services for dry compressible waste, contaminated equipment, etc. Remaining radioactive wastes will be shipped to Chem Nuclear Systems, Inc. in Barnwell, SC, for final disposal.

B. IRRADIATED FUEL SHIPMENTS & DISPOSITION

Number of Shipments	Mode of Transportation	Destination
None	N/A	N/A

Table 3 Pilgrim Nuclear Power Station Effluent and Waste Disposal Report Solid Waste and Irradiated Fuel Shipments July-December 2002

A. SOLID WASTE SHIPPED OFFSITE FOR BURIAL OR DISPOSAL (Not irradiated fuel)

1. Estimate of volume and activity content by type of waste

	July-Dec. 2002		
Type of waste	Volume - m ³	Curies	Total Error
a. Spent resins, filters, filter sludges, evaporator bottoms, etc.	1.12E+01	4.00E+1	± 25%
 b. Dry compressible waste, contaminated equipment, etc. 	None	None	N/A
c. Irradiated components, control rods, etc.	None	None	N/A
d. Other (describe)	None	None	N/A

2. Estimate of major nuclide composition by type of waste¹

Type of waste	Radionuclide	Abundance	Total Error
a. Spent resins, filters, filter sludges,	Mn-54	9.00E+00%	± 25%
evaporator bottoms, etc.	Fe-55	1.40E+01%	± 25%
	Co-60	3.00E+01%	± 25%
	Cs-137	4.00E+01%	± 25%
	<u> </u>	2	
b. Dry compressible waste, contaminated	None	None	N/A
equipment, etc.	None	Section None	N/A
	None	None	N/A
	None	None	N/A
	None	None	N/A
c. Irradiated components, control rods, etc.			
d. Other (describe)	None	None	N/A

" "Major" is defined as any radionuclide comprising >1% of the total activity in the waste category.

3. Solid Waste Disposition

Number of Shipments	Mode of Transportation	Destination
2	Tractor-trailer	Studsvik, ²
		Erwin, TN

This processor provides volume reduction services for dry compressible waste, contaminated equipment, etc. Remaining radioactive wastes will be shipped to Chem Nuclear Systems, Inc. in Barnwell, SC, for final disposal.

B. IRRADIATED FUEL SHIPMENTS & DISPOSITION

Number of Shipments	Mode of Transportation	Destination
None	N/A	N/A

8.0 OFFSITE DOSE CALCULATION MANUAL REVISIONS

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The PNPS Offsite Dose Calculation Manual (ODCM) was not revised during the calendar year of 2002.



9.0 <u>REFERENCES</u>

- 1. U.S. Nuclear Regulatory Commission, "Measuring, Evaluating, and Reporting Radioactivity in Solid Wastes and Releases of Radioactive Materials in Liquid and Gaseous Effluents from Light-Water Cooled Nuclear Power Plants", Regulatory Guide 1.21, Revision 1, June 1974.
- 2. "Pilgrim Nuclear Power Station Offsite Dose Calculation Manual", Revision 8, August 1999.
- 3. U.S. Nuclear Regulatory Commission, "Calculation of Annual Doses to Man from Routine Releases of Reactor Effluents for the Purpose of Evaluating Compliance with 10CFR50 Appendix I", Regulatory Guide 1.109, Revision 1, October 1977.
- 4. U.S. Nuclear Regulatory Commission, "Methods for Estimating Atmospheric Transport and Dispersion of Gaseous Effluents in Routine Releases from Light-Water-Cooled Reactors", Regulatory Guide 1.111, July 1977.
- 5. Boston Edison Company, "Pilgrim Station Unit 1 Appendix I Evaluation", April 1977.
- Entech Engineering Inc., P100-R19, "AEOLUS-3 A Computer Code for the Determination of Atmospheric Dispersion and Deposition of Nuclear Power Plant Effluents During Continuous, Intermittent and Accident Conditions in Open-Terrain Sites, Coastal Sites and Deep-River Valleys"



APPENDIX A

Meteorological Joint Frequency Distributions

	TABLE	TABLE TITLE	PAGE
-	A-1	Distribution of Wind Directions and Speeds for the 33-ft Level of the 220-ft Tower	52
	A-2	Distribution of Wind Directions and Speeds for the 220-ft Level of the 220-ft Tower	62

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Table A-1 Distributions of Wind Directions and Speeds For the 33-ft level of the 220-ft Tower

January-March 2002

Class A Freq: 0.114

mph	N	NNE	NE	ENE	E	ESE	SE	SSE	s	ssw	sw	wsw	W	WNW	NW	NNW	TOTAL
Calm-0.95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.95-3.5	1	0	0	3	0	0	0	0	0	0	0	0	0	0	2	1	7
_3.5-7.5	16	17	_10	3	3	6	1	1	2	4	1	3	_25	13	4	8	117
7.5-12.5	_6	8	1	0	0	1	0	1	13	8	8	5	30	22	0	2	105
12.5-18.5	6	0	0	0	0	0	0	0	2	0	1	0	1	4	0	0	14
18.5-24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	29	25	11	6	3	7	1	2	17	12	10	8	56	39	6	11	243

Class B Freq: 0.036

mph	N	NNE	NE	ENE	E	ESE	SE	SSE	s	ssw	sw	wsw	w	WNW	NW	NNW	TOTAL
Calm-0.95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.95-3.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3.5-7.5	0	0	5	3	0	1	2	2	4	2	1	8	11	2	3	0	44
7.5-12.5	_5	4	0	0	0	0	0	0	7	3	5	3	3	0	1	0	_31
12.5-18.5	_0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	3
18.5-24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	5	4	5	3	0	1	2	2	12	7	6	11	14	2	4	0	78

Class C Freq: 0.045

mph	N	NNE	NE	ENE	E	ESE	SE	SSE	s	ssw	sw	wsw	w	WNW	NW	NNW	TOTAL
Calm-0.95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.95-3.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3.5-7.5	2	0	0	7	0	0	1	0	2	7	2	6	5	2	0	0	34
7.5-12.5	9	1	1	0	1	0	1	5	8	8	8	3	_12	2	2	0	61
12.5-18.5	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2
18.5-24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	11	1	1	7	1	0	2	5	10	17	10	9	17	4	2	0	97

Class D Freq: 0.383

mph	N	NNE	NE	ENE	E	ESE	SE	SSE	s	ssw	sw	wsw	w	WNW	NW	NNW	TOTAL
Calm-0.95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.95-3.5	_5	1	3	6	_2	4	7	2	3	0	4	6	3	5	7	3	61
3.5-7.5	_19	10	16	18	36	17	16	13	40	_38	26	40	31	15	24	13	372
7.5-12.5	12	10	_5	17	33	6	12	11	31	48	17	26	40	32	25	3	328
12.5-18.5	9	0	0	0	1	0	0	2	18	8	1	0	14	3	1	0	57
18.5-24	0	0	0	0	0	0	0	_0	1	0	0	0	0	0	0	0	1
>24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	45	21	24	41	72	27	35	28	93	94	48	72	88	55	57	19	819

January-March 2002

Class E	Freq:	0.318															
mph	N	NNE	NE	ENE	Е	ESE	SE	SSE	s	ssw	sw	wsw	w	WNW	NW	NNW	TOTAL
Calm-0.95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
0.95-3.5	0	1	2	5	6	8	8	11	6	13	11	9	10	8	1	2	101
3.5-7.5	3	1	3	2	7	10	13	16	30	89	75	98	45	24	12	2	430
7.5-12.5	0	1	0	0	7	2	2	12	12	24	21	33	10	3	7	2	136
12.5-18.5	0	0	0	0	0	0	0	1	6	0	0	0	4	1	0	0	12
18.5-24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	3	3	5	7	20	_20	23	40	54	126	107	140	69	36	20	6	680

Class F Freq: 0.087

TOTAL

mph	N	NNE	NE	ENE	E	ESE	SE	SSE	S	ssw	sw	wsw	w	WNW	NW	NNW	TOTAL
Calm-0.95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.95-3.5	0	0	4	0	0	2	4	6	8	7	8	2	4	5	2	0	52
3.5-7.5	0	0	0	1	0	2	1	4	5	29	58	5	0	2	0	0	107
7.5-12.5	0	0	0	0	0	0	0	0	1	17	9	0	0	0	1	0	28
12.5-18.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18.5-24	0	0	0	-0	0	0	0	0	0	0	0	0	0	0	0	0	0
>24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	0	0	4	1	0	4	5	10	14	53	75	7	4	7	3	0	187

Class G	Freq:	0.016															
mph	N	NNE	NE	ENE	Е	ESE	SE	SSE	S	ssw	sw	wsw	w	WNW	NW	NNW	TOTAL
Calm-0.95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.95-3.5	0	0	0	2	3	0	0	0	0	0	0	1	0	1	1	0	8
3.5-7.5	0	1	0	0	0	0	0	0	0	3	11	1	0	0	0	0	16
7.5-12.5	0	1	0	0	0	0	0	0	0	6	3	0	0	0	0	1	11
12.5-18.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18.5-24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	0	2	0	2	3	0	0	0	0	9	14	2	0	1	1	1	35

Class All	Freq:	1.000													
mph	N	NNE	NE	ENE	E	ESE	SE	SSE	s	ssw	sw	wsw	W	WNW	NW
Calm-0.95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.95-3.5	6	2	9	16	11	14	19	19	17	20	23	18	17	19	13
3.5-7.5	40	29	34	34	46	36	34	36	83	172	174	161	117	58	43
7.5-12.5	32	25	7	17	41	9	15	29	72	114	71	70	95	59	36
12.5-18.5	15	0	0	0	1	0	0	3	27	12	2	0	19	8	1
18.5-24	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
>24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

NNW TOTAL

 $d \geq \frac{1}{2}$

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April-June 2002

Class A Freq: 0.312

Ulass A	Fiey.	0.012															
mph	N	NNE	NE	ENE	E	ESE	SE	SSE	s	ssw	sw	wsw	w	WNW	NW	NNW	TOTAL
Calm-0.95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.95-3.5	1	1	1	0	0	1	4	1	0	0	1	0	0	2	0	1	13
3.5-7.5	_28	34	_26_	43	_33_	11	10	3	12	20	13	10	24	25	23	38	353
7.5-12.5	14	23	24	11	10	6	4	2	57	65	17	8	17	5	_ 4	6	273
12.5-18.5	0	3	3	1	0	0	0	0	2	13	0	0	9	0	1	1	33
18.5-24	_0_	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	43	61	54	55	43	18	18	6	71	98	31	18	50	32	28	46	672
Class B	Freq:	0.065															
mph	N	NNE	NE	ENE	Е	ESE	SE	SSE	s	ssw	sw	wsw	w	WNW	NW	NNW	TOTAL
Calm-0.95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.95-3.5	2	1	3	1	0	0	1	0	0	0	0	0	0	3	0	3	14
3.5-7.5	3	8	3	13	17	4	2	0	3	6	3	5	0	1	2	8	78
7.5-12.5	0	3	0	3	0	1	0	1	5	17	3	1	6	1	0	1	42
12.5-18.5	0	0	0	0	0	0	0	0	1	5	0	0	0	0	0	0	6
18.5-24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	5	12	6	17	17	5	3	1	9	28	6	6	6	5	2	12	140
Class C	Freq:	0.046	÷														-
mph	N	NNE	NE	ENE	Е	ESE	SE	SSE	s	ssw	sw	wsw	w	WNW	NW	NNW	TOTAL
Calm-0.95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.95-3.5	4	0	2	2	0	1	0	0	1	0	0	0	0	1	1	4	16
3.5-7.5	3	4	2	5	4	5	2	1	7	4	1	5	2	2	4	4	55
7.5-12.5	0	2	1	1	1	0	1	0	6	10	3	0	2	0	0	0	27
12.5-18.5	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
18.5-24	0	0	0	0	0	0	0	0	0	0	0	_0_	0	0	0	0	0
>24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	7	6	5	8	5	6.	3	1	14	14	4	5	5	3	5	8	99
Class D	Freq:	0.265		r								<u>. </u>					
mph	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	wsw	W	WNW	NW	NNW	TOTAL
Calm-0.95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.95-3.5	5	6	4	3	6	6	11	5	10	10	4	2	1	2	3	10	88
3.5-7.5	7	14	14	24	15	16	16	7	53	38	13	13	12	15	14	6	277
7.5-12.5	4	0	1	9	2	7	4	1	64	66	6	9	8	2	6	5	194
					. –					1	_ م ا				L		
12.5-18.5	0	0	0	0	0	0	0	0	4	5	0	0	3	0	0	0	12
12.5-18.5 18.5-24	0 0	0	0 0	0	0	0	0	0	4	<u> </u>	0	0	3 0	0	0	0	 0
12.5-18.5 18.5-24 >24	0 0 0	0 0 0	0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	4 0 0	5 0 0	0	0	3 0 0	0 0 0	0	0	12 0 0

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Class E Freq: 0.234

Class E	Fley.	0.234															
nph	N	NNE	NE	ENE	E	ESE	SE	SSE	s	ssw	sw	wsw	w	WNW	NW	NNW	TOTAL
Calm-0.95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.95-3.5	3	3	2	7	7	10	15	7	8	7	8	2	5	3	2	3	92
3.5-7.5	4	7	15	14	4	4	7	15	32	21	23	44	31	15	10	10	256
7.5-12.5	0	0	1	0	0	0	0	0	5	95	12	12	23	2	1	0	151
12.5-18.5	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	6
18.5-24	0	0	0	0	0	0	0	_0_	0	0	0	0	0	0	0	0	0
>24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	7	10	18	21	11	14	22	22	45	129	43	58	59	20	13	13	505
-							-				-						
Class F	Freq:	0.063															
mph	N	NNE	NE	ENE	E	ESE	SE	SSE	s	ssw	sw	wsw	w	WNW	NW	NNW	TOTAL
Calm-0.95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.95-3.5	0	0	1	3	3	1	3	1	5	3	7	9	3	2	0	2	43
3.5-7.5	0	0	0	6	0	0	1	1	5	17	30	8	2	4	4	0	78
7.5-12.5	0	0	_0	· 0	0	0	0	0	0	7	7	0	0	0.	0	0	14
12.5-18.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18.5-24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	0	0	1	9	_3	1	4	2	10	27	44	17	5	6	4	2	135
Class G	Freq:	0.016														• *	
mph	N	NNE	NE	ENE	E	ESE	SE	SSE	s	ssw	sw	wsw	w	WNW	NW	ŃNW	TOTAL
Calm-0.95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.95-3.5	0	0	0	0	0	0	0	0	0	0	2	3	2	0	0	0	7
3.5-7.5	0	0	0	2	0	0	0	0	0	3	10	1	0	0	0	0	16
7.5-12.5	0	0	0	0	0	0	0	0	0	7	4	0	0	0	0	0	11
12.5-18.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18.5-24	0	0	0	0	0	0	0	0	_0	0	0	0	0	0	0	0	0
>24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	0	0	0	2	0	0	0	0	0	10	16	4	2	0	0	0	34
Class Ali	Freq:	1.000															
mph	Ν	NNE	NE	ENE	Е	ESE	SE	SSE	s	ssw	sw	wsw	W	WNW	NW	NNW	TOTAL
Caim-0.95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.95-3.5	15	11	13	16	16	19	34	14	24	20	22	16	11	13	6	23	273
3.5-7.5	45	67	60	107	73	40	38	27	112	109	93	86	71	62	57	66	1113
7.5-12.5	18	28	27	24	13	14	9	4	137	267	52	30	56	10	11	12	712
12.5-18.5	0	3	3	1	0	0	0	0	7	29	0	0	13	0	1	1	58
18.5-24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>24	0		0		•		0		-		•		~		0		
		ויין	0	0	0		0	0	0		0	0	U	0 1	0	0 0	0 1
TOTAL	78	109	103	148	102	73	81	45	280	425	0 167	132	151	85	75	102	2156

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3.5-7.5

7.5-12.5

12.5-18.5

18.5-24

>24

TOTAL

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Class A	Freq:	0.224					ſ	r – 1		T						1	1
mph	N	NNE	NE	ENE	E	ESE	SE	SSE	s	ssw	SW	wsw	W	WNW	NW	NNW	TOTAL
Calm-0.95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.95-3.5	6	3	1	2	0	3	1	0	0	0	1	0	0	2	2	9	30
3.5-7.5	12	34	30	18	13	7	1	1	13	23	17	8	8	5	9	12	211
7.5-12.5	0	0	4	2	0	0	0	0	14	39	7	1	0	0	0	0	67
12.5-18.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18.5-24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	18	37	35	22	13	10	2	1	27	62	25	9	8	7	11	21	308
Class B	Freq:	0.064			E	FOE	ee.	005	6	SSW	<u>ew</u>	WOW	147	14/5/14/	NDA/	NINDAZ	TOTAL
						202	36		3	331	377	100300	••				
Calm-0.95		0	0		0		0		0	0	0	0	_0_	0	0		0
0.95-3.5		4	1	3	4	0	1		0	0	0	0	0		1		1/
3.5-7.5	3	4	<u> </u>	3		0	0	2	12	6	3	2	1		1	2	54
7.5-12.5	0		0	0	0	0	0		0	16	0	0	0	1	0		1/
12.5-18.5			0	-0	0	0	0	0	0	0	0	0	0	0	0		0
18.5-24	0		0	0	0	0	0	0	0	0	0	0	0	0	0		0
>24			. 0	0	0	0	0	0	0	0	0	0	0	0	0		0
TOTAL	5	8	8	6	11	0	1	2	12	22	3	2	1	3	2	2	88
Class C	Freq:	0.078								1	r	r					r
_mph	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	wsw	W	WNW	NW	NNW	TOTAL
Calm-0.95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.95-3.5	0	4	4	1	_2	2	2	3	2	0	1	2	0	6	2	0	31
3.5-7.5	2	1	5	1	2	4	1	0	18	15	5	5	3	0	1	0	63
7.5-12.5	0	0	3	0	0	0	0	0	3	7	0	0	0	0	0	0	13
12.5-18.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	_0	0	0
18.5-24	_0	0	0	0	0	0	0	0	_0	0	0	0	0	0	0	0	0
>24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	2	5	12	2	4	6	3	3	23	22	6	7	3	6	3	0	107
Class D	Freq:	0.276															
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	ssw	SW	wsw	W	WNW	NW	NNW	TOTAL
mph	N N	THILE									-						
mph Calm-0.95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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Class E	Freq:	0.222															
mph	N	NNE	NE	ENE	E	ESE	SE	SSE	s	ssw	sw	wsw	w	WNW	NW	NNW	TOTAL
Calm-0.95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.95-3.5	2	2	7	5	2	2	2	8	6	8	5	8	8	3	3	6	77
3.5-7.5	9	11	10	2	5	3	0	0	6	41	23	28	8	14	9	5	174
7.5-12.5	1	1	0	0	0	0	0	0	0	28	16	1	2	4	0	0	53
12.5-18.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18.5-24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	12	14	17	7	7	5	2	8	12	77	44	37	18	21	12	11	304
Class F	Freq:	0.092													~		
mph	N	NNE	NE	ENE	Е	ESE	SE	SSE	s	ssw	sw	wsw	w	WNW	NW	NNW	TOTAL
Calm-0.95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.95-3.5	0	0	0	0	0	0	1	1	3	6	6	16	6	2	2	2	45
3.5-7.5	0	0	0	0	0	0	0	0	5	12	31	5	3	1	1	0	58
7.5-12.5	0	0.	0	0	0	0	0	0	0	8	15	0	0	0	0	0	23
12.5-18.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	. 0	0	0
18.5-24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	0	0	0	0	0	0	1	1	8	26	52	21	9	3	3	2	126
Class G	Freq:	0.044													_		
mph	N	NNE	. NE	ENE	Е	ESE	SE	SSE	s	ssw	sw	wsw	w	WNW	NW	NNW	TOTAL
Calm-0.95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.95-3.5	0	0	0	0	0	0	0	0	0	2	3	3	0	0	0	0	8
3.5-7.5	0	0	0	0	0	0	0	0	0	2	33	5	0	0	0	0	40
7.5-12.5	0	0	0	0	0	0	0	0	_0	5	8	0	0	0	0	0	13
12.5-18.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18.5-24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	0	0	0	0	0	0	_0	0	0	9	44	8	0	0	0	0	61
Class All	Freq:	1.000						-									
mph	N	NNE	NE	ENE	E	ESE	SE	SSE	S	ssw	sw	wsw	w	WNW	NW	NNW	TOTAL
Calm-0.95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.95-3.5	21	19	19	18	12	9	10	15	19	21	21	37	18	20	14	19	292
3.5-7.5	29	63	69	30	53	19	2	8	98	151	124	62	33	27	29	21	818
7.5-12.5	1	5	7	2	0	0	0	0	26	152	48	2	3	8	0	0	254
12.5-18.5	0	0	0	0	0	0	0	0	0	1	0	0	1	6	0	0	8
18.5-24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	61	97	05	50	65	28	12	23	1/2	225	103	101	55	61	43	40	1272

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Class A	Freq:	0.249															
mph	N	NNE	NE	ENE	E	ESE	SE	SSE	S	ssw	sw	wsw	w	WNW	NW	NNW	TOTAL
Calm-0.95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.95-3.5	3	1	0	0	0	0	1	0	0	0	1	0	0	0	4	2	12
3.5-7.5	18	12	11	6	0	2	1	2	5	4	3	1	15	10	13	21	124
7.5-12.5	26	7	9	0	2	4	0	0	1	9	0	2	6	7	5	15	93
12.5-18.5	4	2	19	2	1	0	0	0	0	0	0	0	1	0	0	0	29
18.5-24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	51	22	39	8	3	6	2	2	6	13	4	3	22	17	22	38	258
Class B	Freq	0.062															
mph	N N	NNE	NE	ENE	F	ESE	SE	SSE	s	ssw	sw	wsw	w	WNW	NW	NNW	TOTAL
Calm-0.95		0	0	0		0		002			0	0	0		0	0	0
0.95-3.5	1	4	0	0	0	0	0	0	0	1	0	0	1	0	0	1	8
3.5-7.5	2	1	1	6	2	0	3	0	0	0	1	1	2	2	2	0	23
7.5-12.5	1	0	6	0	1	1	0	0	4	7	1	2	1	1	3.	2	30
12.5-18.5	0	0	0	1	0	0	0	0	0	0	0	0	2	0	0	0	3
18.5-24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 :	0	0
>24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	4	-5	7	7	3	1	3	0	4	8	2	3	6	3	5 ·	3.	64
Class C	Freq:	0.078									-					(<u>)</u>	
mph	· N	NNE	NE	ENE	E	ESE	SE	SSE	s	ssw	sw	wsw	w	WNW	NW	ŃNW	TOTAL
Calm-0.95	o	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.95-3.5	1	0	2	1	0	0	0	0	0	0	1	0	1	0	3	0	9
3.5-7.5	1	4	3	0	0	0	3	0	4	6	2	1	7	0	4	3	38
7.5-12.5	0	0	1	0	_2	1	0	0	17	6	1	3	2	0	0	0	33
12.5-18.5	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
18.5-24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	2	4	6	1	2	1	3	0	21	12	4	4	11	0	7	3	81
	_	· · · ·															
Class D	Freq:	0.274		ENE	-	FOF	05	005		0014	0.11	huon				AINDAR	TOTAL
					<u> </u>	ESE	SE	SSE		557	500	100500	<u></u>				
Caim-0.95	0	0	0	0	0	0	0	0	0		0	0		0	0	-0	0
0.95-3.5	3	4			2	4	5		1	<u> </u>	2		2	2	2	2	3/
3.5-7.5	4	1 11	2	1 0	9	9	9	1 1	13	1 /	ک	12	<u> </u>	9	14	14	133
7	^		4				4		<u> </u>	00	40	ا مه ا	40		~		100
7.5-12.5	0	3	1	0	5	7	1	0	8	29	13	14	13	3	9	0	106
7.5-12.5	0	3	1	0	5	7	1	0	8	29 0	13 0	14 0	13 4	3 0	9 0	0	106 8
7.5-12.5 12.5-18.5 18.5-24	0 1 0	3 0 0	1 1 0	0 0 0	5 0 0	7 0 0	1 0 0	0000	8 2 0	29 0 0	13 0 0	14 0 0	13 4 0	3 0 0	9 0 0	0 0 0	106 8 0
7.5-12.5 12.5-18.5 18.5-24 >24	0 1 0 0	3 0 0 0	1 1 0 0	0 0 0	5 0 0 0	7 0 0	1 0 0	0 0 0	8 _2 _0 _0	29 0 0	13 0 0 0	14 0 0 0	13 4 0 0	3 0 0 0	9 0 0 0	0 0 0	106 8 0 0

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Class E	Freq:	0.261															
mph	N	NNE	NE	ENE	E	ESE	SE	SSE	s	ssw	sw	wsw	w	WNW	NW	NNW	TOTAL
Calm-0.95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.95-3.5	1	1	0	3	0	7	11	12	10	5	9	12	9	3	1	0	84
3.5-7.5	2	5	2	0	8	6	0	2	2	20	26	45	24	9	16	6	173
7.5-12.5	0	0	0	0	0	3	0	0	0	5	3	0	0	1	1	0	13
12.5-18.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18.5-24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	3	6	2	3	8	16	11	14	12	30	38	57	33	13	18	6	270
Class F	Freq:	0.064															
mph	N	NNE	NE	ENE	Е	ESE	SE	SSE	s	ssw	sw	wsw	w	WNW	NW	NNW	TOTAL
Calm-0.95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.95-3.5	0	0	0	0	0	0	3	10	3	7	6	6	5	2	0	0	42
3.5-7.5	0	0	0	0	0	0	0	1	5	4	13	1	0	0	0	0	24
7.5-12.5	0	0	0	0	0	0	0	0	0	0	0	0	0.	0	0	0	0
12.5-18.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18.5-24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>24	0	0	0.	0	0	0	0	0	0	0	0	0	Ó	0	0	0	0
TOTAL	0	0	0	0	0	0	3	11	8	11	19	7	5 :	2	· 0	0	66
Class G	Freq:	0.012	NF	ENE	F	ESE	SF	SSE	s	ssw	sw	wsw	Wr	Iwnw	NW	NNW	TOTAL
Class G	Freq:	0.012 NNE	NE	ENE	E	ESE	SE	SSE	S	ssw	sw	wsw	Wi	WNW	NW	NNW	TOTAL
Class G mph Calm-0.95	Freq: N 0	0.012 NNE	NE 0	ENE 0	E 0	ESE 0	SE 0	SSE 0	S 0	SSW 0	SW 0	wsw 0	Wt. 0	WNW 0	NW 0	NNW 0	TOTAL 0
Class G mph Calm-0.95 0.95-3.5 3.5-7.5	Freq: N 0 0	0.012 NNE 0 0	NE 0 0	ENE O O	E 0 0	ESE 0 0	SE 0 0	SSE 0 0	S 0 0	SSW 0 2	SW 0 1 7	WSW 0 1	Wt 0 1	WNW 0 0	NW 0 0	NNW O O	TOTAL 0 3 9
Class G mph Calm-0.95 0.95-3.5 3.5-7.5 7.5-12.5	Freq: N 0 0 0	0.012 NNE 0 0	NE 0 0 0	ENE O O O	E 0 0 0	ESE 0 0 0	SE 0 0 0	SSE 0 0 0	S 0 0 0	SSW 0 2 0	SW 0 1 7 0	WSW 0 1 0	Wt 0 1 0	WNW 0 0 0	NW 0 0 0	NNW 0 0 0	TOTAL 0 3 9
Class G mph Calm-0.95 0.95-3.5 3.5-7.5 7.5-12.5 12.5-18.5	Freq: N 0 0 0 0	0.012 NNE 0 0 0 0	NE 0 0 0 0	ENE 0 0 0 0	E 0 0 0 0	ESE 0 0 0 0	SE 0 0 0 0	SSE 0 0 0 0	S 0 0 0 0 0	SSW 0 2 0	SW 0 1 7 0	WSW 0 1 0 0	Wt 0 1 0 0	WNW 0 0 0 0	NW 0 0 0 0	NNW 0 0 0 0	TOTAL 0 3 9 0
Class G mph Calm-0.95 0.95-3.5 3.5-7.5 7.5-12.5 12.5-18.5 18.5-24	Freq: N 0 0 0 0 0 0	0.012 NNE 0 0 0 0 0 0	NE 0 0 0 0 0 0	ENE 0 0 0 0 0 0	E 0 0 0 0 0	ESE 0 0 0 0 0 0	SE 0 0 0 0 0 0 0	SSE 0 0 0 0 0 0	S 0 0 0 0 0	SSW 0 0 2 0 0 0	SW 0 1 7 0 0 0	WSW 0 1 0 0 0 0	Wt 0 1 0 0 0 0	WNW 0 0 0 0 0 0	NW 0 0 0 0 0 0	NNW 0 0 0 0 0 0	TOTAL 0 3 9 0 0 0
Class G mph Calm-0.95 0.95-3.5 3.5-7.5 7.5-12.5 12.5-18.5 18.5-24 >24	Freq: N 0 0 0 0 0 0 0 0	0.012 NNE 0 0 0 0 0 0 0 0 0	NE 0 0 0 0 0 0 0	ENE 0 0 0 0 0 0 0	E 0 0 0 0 0 0 0	ESE 0 0 0 0 0 0 0	SE 0 0 0 0 0 0 0 0	SSE 0 0 0 0 0 0 0 0	S 0 0 0 0 0 0 0 0	SSW 0 2 0 0 0 0 0	SW 0 1 7 0 0 0 0	WSW 0 1 0 0 0 0 0	Wt 0 1 0 0 0 0 0	WNW 0 0 0 0 0 0 0	NW 0 0 0 0 0 0 0 0	NNW 0 0 0 0 0 0 0	TOTAL 0 3 9 0 0 0 0 0
Class G mph Calm-0.95 0.95-3.5 3.5-7.5 7.5-12.5 12.5-18.5 12.5-18.5 18.5-24 >24 TOTAL	Freq: N 0 0 0 0 0 0 0 0 0 0	0.012 NNE 0 0 0 0 0 0 0 0 0	NE 0 0 0 0 0 0 0 0	ENE 0 0 0 0 0 0 0 0	E 0 0 0 0 0 0 0	ESE 0 0 0 0 0 0 0 0	SE 0 0 0 0 0 0 0 0	SSE 0 0 0 0 0 0 0 0 0	S 0 0 0 0 0 0 0 0 0	SSW 0 2 0 0 0 0 0 0	SW 0 1 7 0 0 0 0 0 8	WSW 0 1 0 0 0 0 0 0	Wt 0 1 0 0 0 0 0 0	WNW 0 0 0 0 0 0 0 0 0	NW 0 0 0 0 0 0 0 0	NNW 0 0 0 0 0 0 0 0	TOTAL 0 3 9 0 0 0 0 0
Class G mph Calm-0.95 0.95-3.5 3.5-7.5 7.5-12.5 12.5-18.5 18.5-24 >24 TOTAL	Freq: N 0 0 0 0 0 0 0 0 0 0 0 5 Freq:	0.012 NNE 0 0 0 0 0 0 0 0 0 0	NE 0 0 0 0 0 0 0 0	ENE 0 0 0 0 0 0 0 0 0	E 0 0 0 0 0 0 0 0	ESE 0 0 0 0 0 0 0 0 0	SE 0 0 0 0 0 0 0 0 0	SSE 0 0 0 0 0 0 0 0 0	S 0 0 0 0 0 0 0 0 0	SSW 0 0 2 0 0 0 0 0 0 2 2	SW 0 1 7 0 0 0 0 0 8	WSW 0 1 0 0 0 0 0 1	2 0 1 0 0 0 0 0 1	WNW 0 0 0 0 0 0 0 0 0 0	NW 0 0 0 0 0 0 0 0 0	NNW 0 0 0 0 0 0 0 0 0	TOTAL 0 3 9 0 0 0 0 0 12
Class G 2 mph Calm-0.95 0.95-3.5 3.5-7.5 7.5-12.5 12.5-18.5 18.5-24 >24 TOTAL Class All mph	Freq: N 0 0 0 0 0 0 0 0 Freq: N	0.012 NNE 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	NE 0 0 0 0 0 0 0 0 0 0 0	ENE 0 0 0 0 0 0 0 0 0 0 0	E 0 0 0 0 0 0 0 0 0 0	ESE 0 0 0 0 0 0 0 0 0 0 0	SE 0 0 0 0 0 0 0 0 0 0 0 5 5	SSE 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	S 0 0 0 0 0 0 0 0 0 0 0 0 0 0	SSW 0 2 0 0 0 0 0 2 8 SSW	SW 0 1 7 0 0 0 0 0 8 8 SW	WSW 0 1 0 0 0 0 0 1 1	Wt. 0 1 0 0 0 0 0 1 W	WNW 0 0 0 0 0 0 0 0 0 0	NW 0 0 0 0 0 0 0 0	NNW 0 0 0 0 0 0 0 0 0 0	TOTAL 0 3 9 0 0 0 0 0 12 TOTAL
Class G mph Calm-0.95 0.95-3.5 3.5-7.5 7.5-12.5 12.5-18.5 18.5-24 >24 TOTAL Class All mph Calm-0.95	Freq: N 0 0 0 0 0 0 0 0 Freq: N 0	0.012 NNE 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	NE 0 0 0 0 0 0 0 0 0 0 0 0 0 0	ENE 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	E 0 0 0 0 0 0 0 0 0 0 0 0	ESE 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	SE 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	SSE 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	S 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	SSW 0 2 0 0 0 0 0 2 2 SSW 0	SW 0 1 7 0 0 0 0 0 8 8 SW	WSW 0 1 0 0 0 0 0 1 1 WSW 0	Wt 0 1 0 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0	WNW 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	NW 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	NNW 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	TOTAL 0 3 9 0 0 0 0 0 12 TOTAL 0
Class G 2 mph Calm-0.95 0.95-3.5 3.5-7.5 12.5-18.5 18.5-24 >24 TOTAL Class All mph Calm-0.95 0.95-3.5	Freq: N 0 0 0 0 0 0 0 0 Freq: N 9	0.012 NNE 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	NE 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	ENE 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	E 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	ESE 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	SE 0 0 0 0 0 0 0 0 0 0 5 5 5 5 20	SSE 0 0 0 0 0 0 0 0 0 0 0 5 5 5 5 5 5 5 2 8	S 0 0 0 0 0 0 0 0 0 0 0 0 14	SSW 0 2 0 0 0 0 0 2 2 5 5 8 8 9 0 13	SW 0 1 7 0 0 0 0 0 8 8 SW 0 20	WSW 0 1 0 0 0 0 0 1 1 WSW 0 20	Wt 0 1 0 0 0 0 0 0 1 0 0 0 0 0 0 0 0 1 9	WNW 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	NW 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	NNW 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	TOTAL 0 3 9 0 0 0 0 0 0 12 TOTAL 0 195
Class G mph Calm-0.95 0.95-3.5 3.5-7.5 12.5-18.5 18.5-24 >24 TOTAL Class All mph Calm-0.95 0.95-3.5 3.5-7.5	Freq: N 0 0 0 0 0 0 0 0 Freq: N 9 27	0.012 NNE 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	NE 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	ENE 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	E 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	ESE 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 11 17	SE 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	SSE 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 28 6	S 0 0 0 0 0 0 0 0 0 0 0 0 14 29	SSW 0 2 0 0 0 0 0 0 2 2 SSW 0 13 43	SW 0 1 7 0 0 0 0 0 8 8 8 8 8 9 0 20 60	WSW 0 1 0 0 0 0 0 0 1 1 WSW 0 20 61	Wt 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	WNW 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	NW 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	NNW 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	TOTAL 0 3 9 0 0 0 0 0 0 12 TOTAL 0 195 524
Class G mph Calm-0.95 0.95-3.5 3.5-7.5 7.5-12.5 12.5-18.5 18.5-24 >24 TOTAL Class All mph Calm-0.95 0.95-3.5 3.5-7.5 7.5-12.5	Freq: N 0 0 0 0 0 0 0 0 0 Freq: N 0 9 27 27	0.012 NNE 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	NE 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	ENE 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	E 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	ESE 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 1 17 16	SE 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	SSE 0 0 0 0 0 0 0 0 0 0 0 0 0 0 28 6 0 0	S 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 14 29 30	SSW 0 2 0 0 0 0 0 0 0 2 2 5 5 6	SW 0 1 7 0 0 0 0 0 0 0 8 8 8 8 8 0 20 60 18	WSW 0 1 0 0 0 0 0 1 1 WSW 0 20 61 21	Wt 0 1 0 0 0 0 0 0 0 1 1 0 0 0 0 0 0 0 0	WNW 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	NW 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	NNW 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	TOTAL 0 3 9 0 0 0 0 0 0 12 TOTAL 0 195 524 275
Class G Calm-0.95 0.95-3.5 3.5-7.5 7.5-12.5 12.5-18.5 18.5-24 >24 TOTAL Class All mph Calm-0.95 0.95-3.5 3.5-7.5 7.5-12.5 12.5-18.5	Freq: N 0 0 0 0 0 0 0 0 0 0 0 0 0	0.012 NNE 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	NE 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	ENE 0 0 0 0 0 0 0 0 0 0 0 0 4 20 0 3	E 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	ESE 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	SE 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	SSE 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 28 6 0 0	S 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	SSW 0 2 0 0 0 0 0 0 0 0 0 0 0 0 0 13 43 56 0	SW 0 1 7 0 0 0 0 0 0 8 8 8 8 9 0 20 60 18 0	WSW 0 1 0 0 0 0 0 0 1 1 8 8 8 9 6 1 20 61 21 0	Wt 0 1 0 0 0 0 0 0 0 1 0 0 1 0 0 0 1 1 22 8	WNW 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	NW 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	NNW 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	TOTAL 0 3 9 0 0 0 0 0 0 12 TOTAL 0 195 524 275 41
Class G mph Calm-0.95 0.95-3.5 3.5-7.5 12.5-18.5 18.5-24 >24 TOTAL Class All mph Calm-0.95 0.95-3.5 3.5-7.5 12.5-18.5 12.5-18.5 18.5-24	Freq: N 0 0 0 0 0 0 0 0 0 0 0 0 0	0.012 NNE 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	NE 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 19 17 20 0	ENE 0 0 0 0 0 0 0 0 0 0 0 20 0 3 0	E 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	ESE 0 0 0 0 0 0 0 0 0 0 0 0 0 11 17 16 0 0 0	SE 0 0 0 0 0 0 0 0 0 0 0 0 0 0 16 1 0 0 0	SSE 0 0 0 0 0 0 0 0 0 0 28 6 0 28 6 0 0 0 0	S 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 14 29 30 2 0	SSW 0 2 0 0 0 0 0 2 0 2 2 5 5 8 5 8 5 6 0 0 0	SW 0 1 7 0 0 0 0 0 0 8 8 8 8 8 9 0 20 60 18 0 0 0	WSW 0 1 0 0 0 0 0 0 0 1 1 0 61 21 0 0	Wt 0 1 0 0 0 0 0 0 0 0 1 0 0 0 1 0 1 0 1	WNW 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	NW 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 10 49 18 0 0 0	NNW 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 5 34 17 0 0 0	TOTAL 0 3 9 0 0 0 0 0 0 12 TOTAL 0 195 524 275 41 0
Class G 2 mph Calm-0.95 0.95-3.5 3.5-7.5 12.5-18.5 18.5-24 >24 TOTAL Class All mph Calm-0.95 0.95-3.5 3.5-7.5 7.5-12.5 12.5-18.5 12.5-18.5 18.5-24 >24	Freq: N 0 0 0 0 0 0 0 0 0 0 0 7 27 5 0 0 0 0 0 0 0 0 0 0 0 0 0	0.012 NNE 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	NE 0 0 0 0 0 0 0 0 0 0 0 0 0 3 19 17 20 0 0	ENE 0 0 0 0 0 0 0 0 0 0 0 20 0 3 0 0 0 0	E 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 1 0 1 0 0 0	ESE 0 0 0 0 0 0 0 0 0 0 0 11 17 16 0 0 0 0	SE 0 0 0 0 0 0 0 0 0 0 0 0 20 16 1 0 0 0 0	SSE 0 0 0 0 0 0 0 0 0 0 28 6 0 0 0 0 0 0 0 0	S 0 0 0 0 0 0 0 0 0 0 0 0 14 29 30 2 0 0 0	SSW 0 2 0 0 0 0 0 0 2 2 5 5 6 0 0 0 0 0 0 0 0	SW 0 1 7 0 0 0 0 0 0 8 8 8 8 8 0 20 60 18 0 0 18 0 0 0	WSW 0 1 0 0 0 0 0 0 0 1 1 0 20 61 21 0 0 0 0	Wt 0 1 0 0 0 0 0 0 0 0 0 0 1 1 0 1 9 61 22 8 0 0 0	WNW 0 0 0 0 0 0 0 0 0 0 0 0 7 30 12 0 0 0 0	NW 0 0 0 0 0 0 0 0 0 0 0 0 0 10 49 18 0 0 0 0	NNW 0 0 0 0 0 0 0 0 0 0 0 0 0 5 34 17 0 0 0 0	TOTAL 0 3 9 0 0 0 0 0 0 12 TOTAL 0 195 524 275 41 0 0

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9-24-9-2-19-24-22 27-342-24

Class A	Freq:	0.221															
mph	N	NNE	NE	ENE	Е	ESE	SE	SSE	s	ssw	sw	wsw	w	WNW	NW	NNW	TOTAL
Calm-0.95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.	0
0.95-3.5	11	5	2	5	0	4	6	1	0	0	3	0	0	4	8	13	62
3.5-7.5	74	97	77	70	49	26	13	7	32	51	34	22	72	53	49	79	805
7.5-12.5	46	38	38	13	12	11	4	3	85	121	32	16	53	_34	9	23	538
12.5-18.5	10	5	22	3	1	0	0	0	4	13	1	0	11	4	1	1	76
18.5-24	_0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	141	145	139	91	62	41	23	11	_121	185	70	38	136	95	67	116	1481
Class B	Freq:	0.055															
mph	N	NNE	NE	ENE	Е	ESE	SE	SSE	s	ssw	sw	wsw	w	WNW	NW	NNW	TOTAL
Calm-0.95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.95-3.5	_5	9	4	_4	4	0	2	0	0	1	0	0	1	4	1	4	39
3.5-7.5	8	13	16	25	26	5	7	4	19	14	8	16	14	6	8	10	199
7.5-12.5	6	7	6	3	1	2	0	1	16	_43	9	6	10	3	4	3	120
12.5-18.5	0	_0	0	1	_0	0	0	0	2	7	0	0	2	0	0	0	12
18.5-24	0	0	0	0	0	0	0	0 .	0	0	0	0	0	0	0	0	0
>24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	19	29	26	33	31	7	9	5	37	65	17	22	27	-13	13	17	370
Class C	Freq:	0.057				. — — ·						· · · · - ·		<u></u>	1	1	
Class C mph	Freq: N	0.057 NNE	NE	ENE	E	ESE	SE	SSE	S	ssw	SW i	wsw	w	WNW	NW	NNW	TOTAL
Class C mph Calm-0.95	Freq: N 0	0.057 NNE 0	NE 0	ENE 0	E 0	ESE 0	SE 0	SSE 0	S 0	SSW 0	SW :: 0	wsw o	W 0	WNW 0	NW 0	NNW 0	TOTAL 0
Class C mph Calm-0.95 0.95-3.5	Freq: N 0 5	0.057 NNE 0 4	NE 0 8	ENE 0 4	E 0 2	ESE 0 3	SE 0 2	SSE 0 3	S 0 3	SSW 0 0	SW # 0 2	WSW 0 2	W 0 1	WNW 0 7	NW 0 6	NNW 0 4	TOTAL 0 56
Class C mph Calm-0.95 0.95-3.5 3.5-7.5	Freq: N 0 5 8	0.057 NNE 0 4 9	NE 0 8 10	ENE 0 _4 _13	E 0 2 6	ESE 0 3 9	SE 0 2 7	SSE 0 3 1	S 0 3 31	SSW 0 0 32	SW# 0 2 10	WSW 0 2 17	W 0 1 17	WNW 0 7 4	NW 0 6 9	NNW 0 4 7	TOTAL 0 56 190
Class C mph Calm-0.95 0.95-3.5 3.5-7.5 7.5-12.5	Freq: N 0 5 8 9	0.057 NNE 0 4 9 3	NE 0 8 10 6	ENE 0 _4 _13 _1	E 0 2 6 4	ESE 0 3 9 1	SE 0 2 7 2	SSE 0 3 1 5	S 0 3 31 34	SSW 0 32 31	SW# 0 2 10 12	WSW 0 2 17 6	W 0 1 17 16	WNW 0 7 4 2	NW 0 6 9 2	NNW 0 4 7 0	TOTAL 0 56 190 134
Class C mph Calm-0.95 0.95-3.5 3.5-7.5 7.5-12.5 12.5-18.5	Freq: N 0 5 8 9 0	0.057 NNE 0 4 9 3 0	NE 0 8 10 6 0	ENE 0 4 13 1 0	E 0 2 6 4 0	ESE 0 3 9 1 0	SE 0 2 7 2 0	SSE 0 3 1 5 0	S 0 3 31 34 0	SSW 0 32 31 2	SW # 0 2 10 12 0	WSW 0 2 17 6 0	W 0 1 17 16 2	WNW 0 7 4 2 0	NW 0 6 9 2 0	NNW 0 4 7 0 0	TOTAL 0 56 190 134 4
Class C mph Calm-0.95 0.95-3.5 3.5-7.5 7.5-12.5 12.5-18.5 18.5-24	Freq: N 0 5 8 9 0 0	0.057 NNE 0 4 9 3 0 0	NE 0 8 10 6 0 0	ENE 0 4 13 1 0 0	E 0 2 6 4 0 0	ESE 0 3 9 1 0 0	SE 0 2 7 2 0 0	SSE 0 3 1 5 0 0	S 0 3 31 34 0 0	SSW 0 32 31 2 0	SW # 0 2 10 12 0 0	WSW 0 2 17 6 0 0	W 0 1 17 16 2 0	WNW 0 7 4 2 0 0	NW 0 6 9 2 0 0	NNW 0 4 7 0 0 0	TOTAL 0 56 190 134 4 0
Class C mph Calm-0.95 0.95-3.5 3.5-7.5 7.5-12.5 12.5-18.5 18.5-24 >24	Freq: N 0 5 8 9 0 0 0 0	0.057 NNE 0 4 9 3 0 0 0 0	NE 0 8 10 6 0 0 0	ENE 0 4 13 1 0 0 0	E 0 2 6 4 0 0 0	ESE 0 3 9 1 0 0 0	SE 0 2 7 2 0 0 0	SSE 0 3 1 5 0 0 0	S 0 3 31 34 0 0 0	SSW 0 32 31 2 0 0	SW # 0 2 10 12 0 0 0	WSW 0 2 17 6 0 0 0	W 0 1 17 16 2 0 0	WNW 0 7 4 2 0 0 0 0	NW 0 6 9 2 0 0 0	NNW 0 4 7 0 0 0 0	TOTAL 0 56 190 134 4 0 0
Class C mph Calm-0.95 0.95-3.5 3.5-7.5 7.5-12.5 12.5-18.5 18.5-24 >24 TOTAL	Freq: N 0 5 8 9 0 0 0 0 22	0.057 NNE 0 4 9 3 0 0 0 0 0 16	NE 0 8 10 6 0 0 0 24	ENE 0 4 13 1 0 0 0 0 18	E 0 2 6 4 0 0 0 12	ESE 0 3 9 1 0 0 0 0 13	SE 0 2 7 2 0 0 0 0 11	SSE 0 3 1 5 0 0 0 0 9	S 0 3 31 34 0 0 0 68	SSW 0 32 31 2 0 0 65	SW # 0 2 10 12 0 0 0 24	WSW 0 2 17 6 0 0 0 0 25	W 0 1 17 16 2 0 0 0 36	WNW 0 7 4 2 0 0 0 0 13	NW 0 6 9 2 0 0 0 0 17	NNW 0 4 7 0 0 0 0 0 11	TOTAL 0 56 190 134 4 0 0 384
Class C mph Calm-0.95 0.95-3.5 3.5-7.5 7.5-12.5 12.5-18.5 18.5-24 >24 >24 TOTAL	Freq: N 0 5 8 9 0 0 0 0 22 Freq:	0.057 NNE 0 4 9 3 0 0 0 0 0 16	NE 0 8 10 6 0 0 0 0 24	ENE 0 4 13 1 0 0 0 18	E 0 2 6 4 0 0 0 12	ESE 0 3 9 1 0 0 0 13	SE 0 2 7 2 0 0 0 0 11	SSE 0 3 1 5 0 0 0 0 9	S 0 3 31 34 0 0 0 0 68	SSW 0 32 31 2 0 0 65	SW # 0 2 10 12 0 0 0 0 24	WSW 0 2 17 6 0 0 0 0 25	W 0 1 17 16 2 0 0 0 36	WNW 0 7 4 2 0 0 0 0 13	NW 0 6 9 2 0 0 0 0 17	NNW 0 4 7 0 0 0 0 0 11	TOTAL 0 56 190 134 4 0 0 0 384
Class C mph Calm-0.95 0.95-3.5 3.5-7.5 7.5-12.5 12.5-18.5 18.5-24 >24 TOTAL Class D mph	Freq: N 0 5 8 9 0 0 0 0 22 Freq: N	0.057 NNE 0 4 9 3 0 0 0 0 0 16 0.306 NNE	NE 0 8 10 6 0 0 0 24 NE	ENE 0 4 13 1 0 0 0 18 ENE	E 0 2 6 4 0 0 0 12 E	ESE 0 3 9 1 0 0 0 13 ESE	SE 0 2 7 2 0 0 0 11 11 SE	SSE 0 3 1 5 0 0 0 9 9 SSE	S 0 3 31 34 0 0 0 68 S	SSW 0 32 31 2 0 0 65 SSW	SW# 0 2 10 12 0 0 0 0 24 SW	WSW 0 2 17 6 0 0 0 25 WSW	W 0 1 17 16 2 0 0 36 W	WNW 0 7 4 2 0 0 0 0 0 13	NW 0 6 9 2 0 0 0 0 17	NNW 0 4 7 0 0 0 0 11	TOTAL 0 56 190 134 4 0 0 384
Class C mph Calm-0.95 0.95-3.5 3.5-7.5 7.5-12.5 12.5-18.5 18.5-24 >24 TOTAL Class D mph Calm-0.95	Freq: N 0 5 8 9 0 0 0 22 Freq: N 0	0.057 NNE 0 4 9 3 0 0 0 0 0 16 0.306 NNE 0	NE 0 8 10 6 0 0 0 24 NE 0	ENE 0 4 13 1 0 0 0 0 18 ENE 0	E 0 2 6 4 0 0 0 12 E 0	ESE 0 3 9 1 0 0 0 13 ESE 0	SE 0 2 7 2 0 0 0 0 11 1 5 5 5 0	SSE 0 3 1 5 0 0 0 9 9 SSE 0	S 0 3 31 34 0 0 0 68 68 S 0	SSW 0 32 31 2 0 0 65 8 SSW 0	SW :: 0 2 10 12 0 0 0 24 SW 0	WSW 0 2 17 6 0 0 0 25 8 8 8 8 8 8 8 8 9 8 9 8 9 8 9 8 9 8 9	W 0 1 17 16 2 0 0 0 36 36	WNW 0 7 4 2 0 0 0 0 13 WNW 0	NW 0 6 9 2 0 0 0 0 17 17	NNW 0 4 7 0 0 0 0 11 11	TOTAL 0 56 190 134 4 0 0 384 TOTAL 0
Class C mph Calm-0.95 0.95-3.5 3.5-7.5 7.5-12.5 12.5-18.5 18.5-24 >24 TOTAL Class D mph Calm-0.95 0.95-3.5	Freq: N 0 5 8 9 0 0 0 22 Freq: N 0 24	0.057 NNE 0 4 9 3 0 0 0 0 0 16 0.306 NNE 0 17	NE 0 8 10 6 0 0 0 24 NE 0 14	ENE 0 4 13 1 0 0 0 18 ENE 0 16	E 0 2 6 4 0 0 0 12 E 0 14	ESE 0 3 9 1 0 0 0 13 ESE 0 16	SE 0 2 7 2 0 0 0 0 11 1 5 E 0 26	SSE 0 3 1 5 0 0 0 0 9 9 SSE 0 16	S 0 3 31 34 0 0 0 68 5 S 0 22	SSW 0 32 31 2 0 0 65 65 SSW 0 15	SW :: 0 2 10 12 0 0 0 0 24 SW 0 15	WSW 0 2 17 6 0 0 0 25 WSW 0 17	W 0 1 17 16 2 0 0 36 36 W 0 10	WNW 0 7 4 2 0 0 0 0 13 WNW 0 15	NW 0 6 9 2 0 0 0 0 17 17 NW 0 16	NNW 0 4 7 0 0 0 0 11 NNW 0 17	TOTAL 0 56 190 134 4 0 0 384 TOTAL 0 270
Class C mph Calm-0.95 0.95-3.5 3.5-7.5 12.5-18.5 18.5-24 >24 TOTAL Class D mph Calm-0.95 0.95-3.5 3.5-7.5	Freq: N 0 5 8 9 0 0 0 22 Freq: N 0 24 33	0.057 NNE 0 4 9 3 0 0 0 0 0 0 16 0.306 NNE 0 17 48	NE 0 8 10 6 0 0 24 24 NE 0 14 49	ENE 0 4 13 1 0 0 0 0 18 ENE 0 16 56	E 0 2 6 4 0 0 0 12 E 0 14 86	ESE 0 3 9 1 0 0 0 13 13 ESE 0 16 47	SE 0 2 7 2 0 0 0 0 11 11 SE 0 26 41	SSE 0 3 1 5 0 0 9 SSE 0 16 26	S 0 3 31 34 0 0 0 68 5 0 22 150	SSW 0 32 31 2 0 0 65 65 SSW 0 15 135	SW 0 2 10 12 0 0 0 24 24 SW 0 15 59	WSW 0 2 17 6 0 0 0 25 25 WSW 0 17 74	W 0 1 17 16 2 0 0 36 36 W 0 10 66	WNW 0 7 4 2 0 0 0 0 13 13 WNW 0 15 45	NW 0 6 9 2 0 0 0 0 0 17 17 17 16 60	NNW 0 4 7 0 0 0 0 11 11 NNW 0 17 25	TOTAL 0 56 190 134 4 0 0 384 TOTAL 0 270 1000
Class C mph Calm-0.95 0.95-3.5 3.5-7.5 7.5-12.5 12.5-18.5 18.5-24 >24 TOTAL Class D Class D Mph Calm-0.95 0.95-3.5 3.5-7.5 7.5-12.5	Freq: N 0 5 8 9 0 0 0 0 22 Freq: N 0 24 33 16	0.057 NNE 0 4 9 3 0 0 0 0 0 16 0.306 NNE 0 17 48 17	NE 0 8 10 6 0 0 0 24 24 NE 0 14 49 7	ENE 0 4 13 1 0 0 0 0 18 ENE 0 16 56 26	E 0 2 6 4 0 0 0 12 E 0 14 86 40	ESE 0 3 9 1 0 0 0 13 ESE 0 16 47 20	SE 0 2 7 2 0 0 0 0 11 11 SE 0 26 41 17	SSE 0 3 1 5 0 0 0 0 9 9 SSE 0 16 26 12	S 0 3 31 34 0 0 0 0 68 5 5 0 22 150 112	SSW 0 32 31 2 0 0 65 5 SSW 0 15 135 192	SW 0 2 10 12 0 0 0 0 24 24 SW 0 15 59 38	WSW 0 2 17 6 0 0 0 25 8 WSW 0 17 74 49	W 0 1 17 16 2 0 0 36 36 W 0 10 66 62	WNW 0 7 4 2 0 0 0 0 0 13 13 WNW 0 15 45 40	NW 0 6 9 2 0 0 0 0 0 17 17 17 17 0 16 60 40	NNW 0 4 7 0 0 0 0 11 11 NNW 0 17 25 8	TOTAL 0 56 190 134 4 0 0 384 384 TOTAL 0 270 1000 696
Class C mph Calm-0.95 0.95-3.5 3.5-7.5 7.5-12.5 12.5-18.5 18.5-24 >24 70TAL Class D mph Calm-0.95 0.95-3.5 3.5-7.5 7.5-12.5 12.5-18.5	Freq: N 0 5 8 9 0 0 0 22 Freq: N 0 24 33 16 10	0.057 NNE 0 4 9 3 0 0 0 0 0 16 0.306 NNE 0 17 48 17 0	NE 0 8 10 6 0 0 24 24 NE 0 14 49 7 1	ENE 0 4 13 1 0 0 0 0 18 ENE 0 16 56 26 0	E 0 2 6 4 0 0 0 12 E 0 14 86 40 1	ESE 0 3 9 1 0 0 0 13 ESE 0 16 47 20 0	SE 0 2 7 2 0 0 0 0 11 11 SE 0 26 41 17 0	SSE 0 3 1 5 0 0 0 9 9 SSE 0 16 26 12 2	S 0 3 31 34 0 0 0 68 68 5 5 0 22 150 112 24	SSW 0 32 31 2 0 0 65 5 5 5 8 5 8 5 9 2 135 192 14	SW 0 2 10 12 0 0 0 24 SW 0 15 59 38 1	WSW 0 2 17 6 0 0 0 25 25 WSW 0 17 74 49 0	W 0 1 17 16 2 0 0 0 36 36 0 0 0 0 0 0 0 0 0 0 0 0 0 0	WNW 0 7 4 2 0 0 0 0 0 13 13 WNW 0 15 45 40 9	NW 0 6 9 2 0 0 0 0 0 17 17 17 16 60 40 1	NNW 0 4 7 0 0 0 0 11 11 NNW 0 17 25 8 0	TOTAL 0 56 190 134 4 0 0 384 384 TOTAL 0 270 1000 696 85
Class C mph Calm-0.95 0.95-3.5 3.5-7.5 12.5-18.5 18.5-24 >24 TOTAL Class D mph Calm-0.95 0.95-3.5 3.5-7.5 7.5-12.5 12.5-18.5 18.5-24	Freq: N 0 5 8 9 0 0 0 22 Freq: N 0 24 33 16 10 0	0.057 NNE 0 4 9 3 0 0 0 0 16 0 0 16 0 17 48 17 0 0 0	NE 0 8 10 6 0 0 24 NE 0 14 49 7 1 0	ENE 0 4 13 1 0 0 0 0 18 ENE 0 16 56 26 0 0	E 0 2 6 4 0 0 0 12 E 0 14 86 40 1 0	ESE 0 3 9 1 0 0 0 13 ESE 0 16 47 20 0 0	SE 0 2 7 2 0 0 0 0 11 11 SE 0 26 41 17 0 0	SSE 0 3 1 5 0 0 9 SSE 0 16 26 12 2 0	S 0 3 31 34 0 0 0 68 68 5 0 22 150 112 24 1	SSW 0 32 31 2 0 0 65 5 5 5 8 5 8 9 2 135 192 14 0	SW 0 2 10 12 0 0 0 24 SW 0 15 59 38 1 0	WSW 0 2 17 6 0 0 0 25 25 WSW 0 17 74 49 0 0 0	W 0 1 17 16 2 0 0 36 36 36 36 0 0 10 66 62 22 0	WNW 0 7 4 2 0 0 0 0 0 13 13 13 15 45 40 9 0	NW 0 6 9 2 0 0 0 0 17 17 17 17 0 16 60 40 1 0	NNW 0 4 7 0 0 0 0 0 11 1 1 1 25 8 0 0 0	TOTAL 0 56 190 134 4 0 0 384 TOTAL 0 270 1000 696 85 1
Class C mph Calm-0.95 0.95-3.5 3.5-7.5 7.5-12.5 12.5-18.5 18.5-24 >24 TOTAL Class D Calm-0.95 0.95-3.5 3.5-7.5 7.5-12.5 12.5-18.5 18.5-24 >24	Freq: N 0 5 8 9 0 0 0 22 Freq: N 0 24 33 16 10 0 0 0	0.057 NNE 0 4 9 3 0 0 0 0 16 0 16 0 17 48 17 0 0 0 0 0 0	NE 0 8 10 6 0 0 24 24 NE 0 14 49 7 1 0 0	ENE 0 4 13 1 0 0 0 0 18 ENE 0 16 56 26 0 0 0 0 0	E 0 2 6 4 0 0 0 12 12 14 86 40 1 0 0	ESE 0 3 9 1 0 0 0 13 13 ESE 0 16 47 20 0 0 0 0	SE 0 2 7 2 0 0 0 0 0 11 11 SE 0 26 41 17 0 0 0 0	SSE 0 3 1 5 0 0 0 9 9 SSE 0 16 26 12 2 0 0 0 0	S 0 3 31 34 0 0 0 68 68 5 0 22 150 112 24 1 0	SSW 0 32 31 2 0 0 65 5 5 5 5 9 2 135 192 14 0 0 0	SW# 0 2 10 12 0 0 2 10 12 0 0 24 SW 0 15 59 38 1 0 0	WSW 0 2 17 6 0 0 0 25 25 WSW 0 17 74 49 0 0 0 0 0	W 0 1 17 16 2 0 0 36 36 36 36 0 10 66 62 22 0 0 0	WNW 0 7 4 2 0 0 0 0 0 13 13 13 13 15 45 40 9 9 0 0 0	NW 0 6 9 2 0 0 0 0 0 0 17 17 16 60 40 1 0 0	NNW 0 4 7 0 0 0 0 0 11 11 11 17 25 8 0 0 0 0 0	TOTAL 0 56 190 134 4 0 0 384 TOTAL 0 270 1000 696 85 1 0

January-December 2002

Class E	Freq:	0.262															
mph	N	NNE	NE	ENE	E	ESE	SE	SSE	s	ssw	sw	wsw	w	WNW	NW	NNW	TOTAL
Calm-0.95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
0.95-3.5	6	7	11	20	15	27	36	38	30	33	33	31	32	17	7	11	354
3.5-7.5	18	24	30	18	24	23	_20_	33	70	171	147	215	108	62	47	23	1033
7.5-12.5	1	2	1	0	7	5	2	12	17	152	52	46	35	10	9	2	353
12.5-18.5	0	0	0	0	0	0	0	1	6	6	0	0	4	1	0	0	18
18.5-24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	25	33	42	38	46	55	58	84	123	362	232	292	179	90	63	36	1759
Class F	Frea:	0.077															
mph	N	NNE	NE	ENE	Е	ESE	SE	SSE	s	ssw	sw	wsw	w	WNW	NW	NNW	TOTAL
Calm-0.95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.95-3.5	0	0	5	3	3	3	11	18	19	23	27	33	18	11	4	4	182
3.5-7.5	0	0	0	7	0	2	2	6	20	62	132	19	5	7	5	0	267
7.5-12.5	0	0	0	0	0	0	0	0	1	32	31	0	0	0	1	0	65
12.5-18.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18.5-24	0	0	0	0	0	0	0	0	-0	0	0	0	0	0	0	0	0
>24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	0	0	5	10	3	5	13	24	40	117	190	52	23	18	10	4	514
Class G	Freq:	0.021					r	1	• 2 • •	· · · · · · · · · · · · · · · · · · ·			<u> </u>			1	
mph	<u>N</u>	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	<u>w</u>	WNW	NW	NNW	TOTAL
Calm-0.95	0						-										
0.95-3.5	0	<u> </u>		0		0	0	0	0	0	0	0	0	0	0	0	0
	<u> </u>	0	0	0 2	0 3	0	0	0	0	0	0 6	0 8	0 3	0	0	0	0 26
3.5-7.5	0	0	0	0 2 2	0 3 0	0 0 0	0 0 0	0 0 0	0 0 0	0 2 10	0 6 61	0 8 7	0 3 0	0 1 0	0 1 0	0 0 0	0 26 81
3.5-7.5 7.5-12.5	0	0 1 1	0 0 0	0 2 2 0	0 3 0 0	0 0 0	0 0 0	0 0 0	0 0 0 0	0 2 10 18	0 6 61 15	0 8 7 0	0 3 0 0	0 1 0 0	0 1 0 0	0 0 0	0 26 81 35
3.5-7.5 7.5-12.5 12.5-18.5	0 0 0	0 1 1 0	0 0 0 0	0 2 2 0 0	0 3 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 2 10 18 0	0 61 15 0	0 8 7 0 0	0 3 0 0 0	0 1 0 0 0	0 1 0 0	0 0 1 0	0 26 81 35 0
3.5-7.5 7.5-12.5 12.5-18.5 18.5-24	0 0 0 0	0 1 1 0 0	0 0 0 0	0 2 2 0 0	0 3 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0	0 0 0 0 0	0 2 10 18 0 0	0 61 15 0 0	0 8 7 0 0	0 3 0 0 0	0 1 0 0 0	0 1 0 0 0	0 0 1 0	0 26 81 35 0 0
3.5-7.5 7.5-12.5 12.5-18.5 18.5-24 >24	0 0 0 0	0 1 1 0 0	0 0 0 0 0 0	0 2 2 0 0 0 0	0 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 2 10 18 0 0 0	0 61 15 0 0 0	0 8 7 0 0 0	0 3 0 0 0 0 0	0 1 0 0 0 0	0 1 0 0 0 0 0	0 0 1 0 0 0	0 26 81 35 0 0 0
3.5-7.5 7.5-12.5 12.5-18.5 18.5-24 >24 TOTAL	0 0 0 0 0	0 1 1 0 0 0 2	0 0 0 0 0 0 0	0 2 2 0 0 0 0 4	0 3 0 0 0 0 0 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 2 10 18 0 0 0 30	0 61 15 0 0 0 82	0 8 7 0 0 0 0 15	0 3 0 0 0 0 0 0 3	0 1 0 0 0 0 0	0 1 0 0 0 0 0 1	0 0 1 0 0 0	0 26 81 35 0 0 0 142
3.5-7.5 7.5-12.5 12.5-18.5 18.5-24 >24 TOTAL	0 0 0 0 0 0 Freq:	0 1 1 0 0 0 2	0 0 0 0 0 0 0	0 2 2 0 0 0 0 4	0 3 0 0 0 0 0 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 2 10 18 0 0 0 30	0 6 15 0 0 0 82	0 8 7 0 0 0 0 15	0 3 0 0 0 0 0 3	0 1 0 0 0 0 0 1	0 1 0 0 0 0 0 1	0 0 1 0 0 0	0 26 81 35 0 0 0 0 142
3.5-7.5 7.5-12.5 12.5-18.5 18.5-24 >24 TOTAL Class All mph	0 0 0 0 0 0 Freq: N	0 1 1 0 0 0 2 1.000 NNE	0 0 0 0 0 0 0	0 2 2 0 0 0 0 0 4 8	0 3 0 0 0 0 3 2	0 0 0 0 0 0 0 0 0 8 5 8	0 0 0 0 0 0 0 0 0 5 5 5	0 0 0 0 0 0 0 0 0 5 5 5 5 5	0 0 0 0 0 0 0 0 0 5	0 2 10 18 0 0 0 30 SSW	0 61 15 0 0 0 82 SW	0 8 7 0 0 0 0 0 15	0 3 0 0 0 0 0 3 3	0 1 0 0 0 0 0 1	0 1 0 0 0 0 0 1	0 0 1 0 0 0 1 NNW	0 26 81 35 0 0 0 142 TOTAL
3.5-7.5 7.5-12.5 12.5-18.5 18.5-24 >24 TOTAL Class All mph Calm-0.95	0 0 0 0 0 0 Freq: N 0	0 1 1 0 0 0 0 2 1.000 NNE 0	0 0 0 0 0 0 0 0 0 0 0 0 0	0 2 2 0 0 0 0 0 4 ENE 0	0 3 0 0 0 0 3 3 E	0 0 0 0 0 0 0 5 5 5 5 5 5 5 5 5 5 5 5 5	0 0 0 0 0 0 0 0 0 0 5 5 5 5 0	0 0 0 0 0 0 0 5 5 5 5 5 5 0	0 0 0 0 0 0 0 0 0 5 0	0 2 10 18 0 0 0 30 30 SSW	0 6 61 15 0 0 0 82 82 SW	0 8 7 0 0 0 0 15 WSW	0 3 0 0 0 0 0 3 3 W	0 1 0 0 0 0 1 WNW	0 1 0 0 0 0 0 1 1 NW	0 0 1 0 0 0 1 NNW	0 26 81 35 0 0 0 142 TOTAL
3.5-7.5 7.5-12.5 12.5-18.5 18.5-24 >24 TOTAL Class All Mph Calm-0.95 0.95-3.5	0 0 0 0 0 51	0 1 1 0 0 2 1.000 NNE 0 42	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 2 2 0 0 0 0 4 ENE 0 54	0 3 0 0 0 0 3 3 E 0 41	0 0 0 0 0 0 0 0 53	0 0 0 0 0 0 0 0 0 0 5 5 5 5 8 3	0 0 0 0 0 0 0 0 0 5 5 5 5 5 5 7 6	0 0 0 0 0 0 0 0 5 5 0 74	0 2 10 18 0 0 30 30 SSW 0 74	0 6 15 0 0 82 SW 0 86	0 8 7 0 0 0 0 15 WSW 0 91	0 3 0 0 0 3 3 W 0 65	0 1 0 0 0 0 1 1 WNW 0 59	0 1 0 0 0 0 1 1 NW 0 43	0 0 1 0 0 0 1 NNW 0 53	0 26 81 35 0 0 0 142 TOTAL 1 989
3.5-7.5 7.5-12.5 12.5-18.5 18.5-24 >24 TOTAL Class All Calm-0.95 0.95-3.5 3.5-7.5	0 0 0 0 0 0 0 51 141	0 1 1 0 0 0 2 1.000 NNE 0 42 192	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 44 182	0 2 2 0 0 0 0 4 4 ENE 0 54 191	0 3 0 0 0 0 3 3 E 0 41 191	0 0 0 0 0 0 0 0 0 53 112	0 0 0 0 0 0 0 0 0 0 0 0 0 83 90	0 0 0 0 0 0 0 0 0 0 5 5 5 5 7 6 77	0 0 0 0 0 0 0 0 0 0 5 0 74 322	0 2 10 18 0 0 30 30 SSW 0 74 475	0 6 61 15 0 0 0 82 SW 0 86 451	0 8 7 0 0 0 15 15 WSW 0 91 370	0 3 0 0 0 3 3 W 0 65 282	0 1 0 0 0 0 1 1 WNW 0 59 177	0 1 0 0 0 1 1 NW 0 43 178	0 0 1 0 0 0 1 1 NNW 0 53 144	0 26 81 35 0 0 0 0 142 TOTAL 1 989 3575
3.5-7.5 7.5-12.5 12.5-18.5 18.5-24 >24 TOTAL Class All Mph Calm-0.95 0.95-3.5 3.5-7.5 7.5-12.5	0 0 0 0 0 51 141 78	0 1 1 0 0 0 2 1.000 NNE 0 42 192 68	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 2 2 0 0 0 4 4 ENE 0 54 191 43	0 3 0 0 0 0 3 3 5 5 6 4	0 0 0 0 0 0 0 0 0 0 53 112 39	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 76 77 33	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 74 322 265	0 2 10 18 0 0 30 30 SSW 0 74 475 589	0 6 61 15 0 0 82 82 SW 0 86 451 189	0 8 7 0 0 0 0 15 WSW 0 91 370 123	0 3 0 0 0 3 3 8 282 176	0 1 0 0 0 0 1 1 WNW 0 59 177 89	0 1 0 0 0 1 1 NW 0 43 178 65	0 0 1 0 0 0 1 1 NNW 0 53 144 37	0 26 81 35 0 0 0 0 142 TOTAL 1 989 3575 1941
3.5-7.5 7.5-12.5 12.5-18.5 18.5-24 >24 TOTAL Class All Mph Calm-0.95 0.95-3.5 3.5-7.5 7.5-12.5 12.5-18.5	0 0 0 0 0 5 1 141 78 20	0 1 1 0 0 0 2 1.000 NNE 0 42 192 68 5	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 2 2 0 0 0 0 4 4 ENE 0 54 191 43 4	0 3 0 0 0 0 3 3 5 5 6 4 1 91 6 4 2	0 0 0 0 0 0 0 0 0 0 0 53 112 39 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 5 5 74 322 265 36	0 2 10 18 0 0 30 30 SSW 0 74 475 589 42	0 6 61 15 0 0 82 82 SW 0 86 451 189 2	0 8 7 0 0 0 0 15 WSW 0 91 370 123 0	0 3 0 0 0 3 3 8 2 8 2 8 2 8 2 8 2 8 2 8 2 8 2 8 2	0 1 0 0 0 0 0 1 1 WNW 0 59 1777 89 14	0 1 0 0 0 0 1 1 NW 0 43 178 65 2	0 0 1 0 0 0 1 1 NNW 0 53 144 37 1	0 26 81 35 0 0 0 142 TOTAL 1 989 3575 1941 195
3.5-7.5 7.5-12.5 12.5-18.5 18.5-24 >24 TOTAL Class All Mph Calm-0.95 0.95-3.5 3.5-7.5 7.5-12.5 12.5-18.5 18.5-24	0 0 0 0 0 0 0 5 1 141 78 20 0	0 1 1 0 0 0 2 1.000 NNE 0 42 192 68 5 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 2 2 0 0 0 4 4 ENE 0 54 191 43 4 0	0 3 0 0 0 0 3 3 2 41 191 64 2 0	0 0 0 0 0 0 0 0 0 53 112 39 0 0	0 0 0 0 0 0 0 0 0 0 0 0 83 90 25 0 0	0 0 0 0 0 0 0 0 0 0 0 5SE 0 76 77 33 3 3 0	0 0 0 0 0 0 0 0 0 0 5 0 74 322 265 36 1	0 2 10 18 0 0 30 30 30 30 30 30 30 30 42 589 42 0	0 6 61 15 0 0 82 82 SW 0 86 451 189 2 0	0 8 7 0 0 0 15 15 370 123 0 0	0 3 0 0 0 0 3 3 8 2 8 2 8 2 82 176 41 0	0 1 0 0 0 0 0 1 0 0 0 1 0 59 1777 89 14 0	0 1 0 0 0 0 1 1 NW 0 43 178 65 2 0	0 0 1 0 0 0 1 1 NNW 0 53 144 37 1 0	0 26 81 35 0 0 0 142 TOTAL 1 989 3575 1941 195 1
3.5-7.5 7.5-12.5 12.5-18.5 18.5-24 >24 TOTAL Class All Mph Calm-0.95 0.95-3.5 3.5-7.5 7.5-12.5 12.5-18.5 18.5-24 >24	0 0 0 0 0 0 0 0 0 51 141 78 20 0 0 0	0 1 1 0 0 2 1.000 NNE 0 42 192 68 5 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 44 182 58 23 0 0 0	0 2 2 0 0 0 4 4 54 191 43 4 0 0 0	0 3 0 0 0 0 3 3 5 4 1 191 64 2 0 0 0	0 0 0 0 0 0 0 0 0 0 53 112 39 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 83 90 25 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 76 77 33 3 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 74 322 265 36 1 0	0 2 10 18 0 0 30 30 30 30 30 30 30 30 42 589 42 0 0 0	0 6 61 15 0 0 82 82 5 8 9 451 189 2 0 0 0	0 8 7 0 0 0 15 15 370 123 0 0 0 0 0	0 3 0 0 0 3 3 8 7 6 5 282 176 41 0 0	0 1 0 0 0 0 1 1 0 59 177 89 14 0 0	0 1 0 0 0 0 1 1 NW 0 43 178 65 2 0 0 0	0 0 0 1 0 0 0 0 1 1 0 53 144 37 1 0 0	0 26 81 35 0 0 0 142 TOTAL 1 989 3575 1941 195 1 0

Table A-2 Distributions of Wind Directions and Speeds For the 220-ft level of the 220-ft Tower

January-March 2002

Class A Freq: 0.117

mph	N	NNE	NE	ENE	Е	ESE	SE	SSE	S	ssw	sw	wsw	w	WNW	NW	NNW	TOTAL
Calm-0.95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.95-3.5	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
3.5-7.5	1	6	2	0	2	0	0	0	0	0	0	1	1	1	3	0	17
7.5-12.5	11	7	5	0	2	1	2	1	1	1	0	2	5	5	0	2	45
12.5-18.5	6	3	1	0	0	5	2	1	9	4	4	_3	22	10	_1	7	78
18.5-24	0	2	0	0	0	0	0	0	6	2	4	3	6	6	2	3	34
>24	13	1	0	0	0	0	0	0	1	0	1	0	9	13	0	1	39
TOTAL	31	19	8	2	4	6	4	2	17	7	9	9	43	35	6	13	215
Class B	Freq:	0.038						r		<u> </u>							
mph	N	NNE	NE	ENE	E	ESE	SE	SSE	S	ssw	sw	wsw	W	WNW	NW	NNW	TOTAL
Calm-0.95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.95-3.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3.5-7.5	0	1	1	0	0	0	0	0	0	0	0	0	0	3	0	0	5
7.5-12.5	0	1	1	1	2	0	0	3	1	0	0	3	6	1	0	0	19
12.5-18.5	0	0	1	0	0	1	1	1	5	2	3	5	5	1	0	0	25
18.5-24	1	1	0	0	0	0	0	0	0	0	3	0	2	1	1	0	9
>24	5	1	0	0	0	0	0	0	1	2	0	1	0	0	0	1	11
TOTAL	6	_4	3	1	2	1	5 1 *	4	7	4	6	9	13	6	1	1	69
							7.0	4									
Class C	Freq:	0.048						×		.							
mph	N	NNE	NE	ENE	E	ESE	SE	SSE	s	ssw	sw	wsw	w	WNW	NW	NNW	TOTAL
Calm-0.95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.95-3.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3.5-7.5	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	2
7.5-12.5	0	0	0	_3	1	0	0	0	0	3	_3	1	4	0	0	0	15
12.5-18.5	0	1	1	0	1	0	1	5	4	8	5	5	3	2	0	1	37
18.5-24	3	0	0	0	0	0	1	0	2	2	_3	1	6	3	0	0	21
>24	5	0	0	0	1	0	0	0	0	2	0	0	2	0	2	1	13
TOTAL	8	1	1	4	4	0	2	5	6	15	11	7	<u>15</u>	5	2	2	88
Class D	Freq:	0.390								,							
mph	N	NNE	NE	ENE		ESE	SE	SSE	S	ssw	sw	wsw	W	WNW	NW	NNW	TOTAL
Calm-0.95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.95-3.5	0	0	0	0	0	0	0	1	2	0	1	1	0	0	0	1	6
3.5-7.5	1	2	7	6	3	4	5	4	1	2	0	1	1	0	3	3	43
7.5-12.5	_1	3	8	10	16	7	7	6	13	21	11	11	10	4	4	2	134
12.5-18.5	7	8	3	8	20	11	9	2	20	40	21	32	13	13	11	6	224
18.5-24	4	1	0	4	15	1	12	9	14	26	14	21	20	7	17	8	173
>24	12	0	0	1	7	5	3	2	15	15	2	1	19	_28	14	11	135
TOTAL	25	14	18	29	61	28	36	24	65	104	49	67	63	52	49	31	715

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Class E	Freq:	0.322															
mph	N	NNE	NE	ENE	E	ESE	SE	SSE	S	ssw	sw	wsw	w	WNW	NW	NNW	TOTAL
Calm-0.95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.95-3.5	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	2
3.5-7.5	1	3	_3	4	3	4	4	4	2	2	0	2	4	1	1	2	40
7.5-12.5	1	0	2	_ 2	5	11	11	3	5	9	9	10	9	8	3	3	91
12.5-18.5	1	1	1	0	2	4	12	9	11	35	55	59	61	18	18	2	289
18.5-24	0	0	0	0	1	2	2	10	6	15	30	33	28	7	_9	1	144
>24	0	0	0	0	0	0	0	2	7	1	0	0	4	4	5	2	25
TOTAL	3	4	6	6	_11	21	30	29	31	62	94	104	106	38	36	10	591
Class F	Freq:	0.075							ŕ					<u> </u>		1 · · ·	
mph	N	NNE	NE	ENE	E	ESE	SE	SSE	S	ssw	sw	wsw	W	WNW	NW	NNW	TOTAL
Calm-0.95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	_0_	0
0.95-3.5	0	0	0	0	1	0	2	0	2	0	0	0	2	0	0	0	7
3.5-7.5	3	3	0	1	1	0	3	3	2	1	0	2	3	0	2	0	24
7.5-12.5	2	0	0	4	1	0	4	4	3	5	9	2	5	1	2	1	43
12.5-18.5	0	0	0	0	1	1	1	4	2	4	22	13	4	1	0	0	_53
18.5-24	0	0	· 0	0	0	0	0	0	0	2	4	1	0	0	2	0	9
>24	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	
TOTAL	5	3	0	5	. 4	1	10	11	9	12	36	18	14	2	6	1	137
Class G	Freq:	0.011															
mph	N		ALC:														
			NE	ENE	E	ESE	SE	SSE	S	SSW	SW	wsw	W	WNW	NW	NNW	TOTAL
Calm-0.95	0		NE 0	ENE 0	÷Е 4	ESE 0	SE 0	SSE 0	<u>s</u> 0	SSW 0	SW 0	wsw o	<u>w</u>	WNW 0	NW 0	NNW 0	TOTAL 0
Calm-0.95 0.95-3.5	0		0 0	O O	0 0	ESE 0 0	SE 0 0	SSE 0 0	<u> </u>	SSW 0 0	SW 0 0	wsw 0 0	W 0 0	WNW 0 0	NW 0 0	NNW 0	TOTAL 0 1
Calm-0.95 0.95-3.5 3.5-7.5	0 1 0	0	0 0 0	0 0 0	0 0 0	0 0 0	SE 0 0 0	SSE 0 0 0	 	SSW 0 0	<u>SW</u> 0 0 1	0 0 0 0	W 0 0	WNW 0 0 0	NW 0 0	NNW 0 0	TOTAL 0 1 2
Calm-0.95 0.95-3.5 3.5-7.5 7.5-12.5	0 1 0 0	0 0 1 0	0 0 0 1	0 0 0 0	0 0 0 0	ESE 0 0 0	SE 0 0 0 0	SSE 0 0 0	S 0 0 0 0	SSW 0 0 0	SW 0 1 2	WSW 0 0 0 1	W 0 0 3	WNW 0 0 0	NW 0 0 0	NNW 0 0 0	TOTAL 0 1 2 8
Calm-0.95 0.95-3.5 3.5-7.5 7.5-12.5 12.5-18.5	0 1 0 0	0 0 1 0 1	NE 0 0 1 0	0 0 0 0 0	0 0 0 0 0	ESE 0 0 0 0	SE 0 0 0 0	SSE 0 0 0 0	S 0 0 0 0 0	SSW 0 0 0 0	SW 0 1 2 1	WSW 0 0 1 1	W 0 0 3 1	WNW 0 0 1 0	NW 0 0 0 0	NNW 0 0 0 0	TOTAL 0 1 2 8 4
Calm-0.95 0.95-3.5 3.5-7.5 7.5-12.5 12.5-18.5 18.5-24	0 1 0 0 0	0 0 1 0 1 0	NE 0 0 1 0 0	0 0 0 0 0 0	0 0 0 0 0	ESE 0 0 0 0 0 0	SE 0 0 0 0 0 0	SSE 0 0 0 0 0 0	S 0 0 0 0 0 0	SSW 0 0 0 0 0	SW 0 1 2 1 3	WSW 0 0 1 1 0	W 0 0 3 1 0	WNW 0 0 1 0 0	NW 0 0 0 0 0 0	NNW 0 0 0 0 0 0	TOTAL 0 1 2 8 4 4
Calm-0.95 0.95-3.5 3.5-7.5 7.5-12.5 12.5-18.5 18.5-24 >24	0 1 0 0 1 0	0 0 1 0 1 0	NE 0 0 1 0 0 0	ENE 0 0 0 0 0 0 0	0 0 0 0 0 0 0	ESE 0 0 0 0 0 0 0	SE 0 0 0 0 0 0 0	SSE 0 0 0 0 0 0	S 0 0 0 0 0 0 0 0	SSW 0 0 0 0 0 0	SW 0 1 2 1 3 0	WSW 0 0 1 1 0 0	W 0 0 3 1 0 0	WNW 0 0 1 0 0 0	NW 0 0 0 0 0 0 0 0	NNW 0 0 0 0 0 0 1	TOTAL 0 1 2 8 4 4 4 1
Calm-0.95 0.95-3.5 3.5-7.5 7.5-12.5 12.5-18.5 18.5-24 >24 TOTAL	0 1 0 0 1 0 1 0 2	NNE 0 1 0 1 0 0 2	NE 0 0 1 0 0 0 0 1	ENE 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	ESE 0 0 0 0 0 0 0 0 0	SE 0 0 0 0 0 0 0 0 0	SSE 0 0 0 0 0 0 0 0	S 0 0 0 0 0 0 0 0 0 0	SSW 0 0 0 0 0 0 0 0	SW 0 1 2 1 3 0 7	WSW 0 0 1 1 0 0 2	W 0 0 3 1 0 0 4	WNW 0 0 1 0 0 0 0 1	NW 0 0 0 0 0 0 0 0 0	NNW 0 0 0 0 0 0 0 0 1	TOTAL 0 1 2 8 4 4 1 20
Calm-0.95 0.95-3.5 3.5-7.5 7.5-12.5 12.5-18.5 18.5-24 >24 TOTAL	0 1 0 0 1 0 1 0 2	0 0 1 0 1 0 0 2	NE 0 0 1 0 0 0 1	ENE 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0	ESE 0 0 0 0 0 0 0 0	SE 0 0 0 0 0 0 0 0	SSE 0 0 0 0 0 0 0 0	S 0 0 0 0 0 0 0 0 0	SSW 0 0 0 0 0 0 0 0	SW 0 1 2 1 3 0 7	WSW 0 0 1 1 0 0 2	W 0 0 3 1 0 0 4	WNW 0 0 0 1 0 0 0 0 1	NW 0 0 0 0 0 0 0 0	NNW 0 0 0 0 0 0 1 1	TOTAL 0 1 2 8 4 1 20
Calm-0.95 0.95-3.5 3.5-7.5 7.5-12.5 12.5-18.5 18.5-24 >24 TOTAL Class All	0 1 0 0 1 0 1 0 2 Freq:	0 0 1 0 1 0 2 1.000	NE 0 0 1 0 0 0 1	ENE 0 0 0 0 0 0 0		ESE 0 0 0 0 0 0 0	SE 0 0 0 0 0 0 0	SSE 0 0 0 0 0 0 0	S 0 0 0 0 0 0 0 0	SSW 0 0 0 0 0 0 0	SW 0 1 2 1 3 0 7	WSW 0 0 1 1 0 0 2	W 0 0 3 1 0 0 4	WNW 0 0 0 1 0 0 0 1	NW 0 0 0 0 0 0 0 0	NNW 0 0 0 0 0 0 1 1	TOTAL 0 1 2 8 4 1 20
Calm-0.95 0.95-3.5 3.5-7.5 7.5-12.5 12.5-18.5 18.5-24 >24 TOTAL Class All mph	0 1 0 0 1 0 2 Freq: N	0 0 1 0 1 0 2 1.000 NNE	NE 0 0 1 0 0 0 1 1 1 NE	ENE 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	ESE 0 0 0 0 0 0 0 0 0 0 0 0 0	SE 0 0 0 0 0 0 0 0 0 0 0 5 5	SSE 0 0 0 0 0 0 0 0 0 0 5 5 5 5 5 5 5 5 5	S 0 0 0 0 0 0 0 0 0 0 0 5	SSW 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	SW 0 1 2 1 3 0 7 5W	WSW 0 0 1 1 0 0 2 WSW	W 0 0 3 1 0 0 4 W	WNW 0 0 1 0 0 0 1 1 WNW	NW 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	NNW 0 0 0 0 0 0 1 1 1	TOTAL 0 1 2 8 4 4 1 20 TOTAL
Calm-0.95 0.95-3.5 3.5-7.5 7.5-12.5 12.5-18.5 18.5-24 >24 TOTAL Class All mph Calm-0.95	0 1 0 0 1 0 2 Freq: N 0	NNE 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1.0000 NNE 0	NE 0 0 0 1 0 0 0 1 1 NE 0	ENE 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0	ESE 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	SE 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	SSE 0 0 0 0 0 0 0 0 0 5 5 5 5 5 5 5 0	S 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	SSW 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	SW 0 1 2 1 3 0 7 5 W 0	WSW 0 0 1 1 0 0 2 WSW 0	W 0 0 3 1 0 0 4 W 0	WNW 0 0 1 0 0 0 0 1 1 0 0 0 0 0 0 0	NW 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	NNW 0 0 0 0 0 0 1 1 1 0 0	TOTAL 0 1 2 8 4 4 1 20 TOTAL 0
Calm-0.95 0.95-3.5 3.5-7.5 7.5-12.5 12.5-18.5 18.5-24 >24 TOTAL Class All mph Calm-0.95 0.95-3.5	0 1 0 0 1 0 2 Freq: N 0 1	0 0 1 0 1 0 0 2 1.000 NNE 0 0	NE 0 0 0 1 0 0 0 1 1 NE 0 0	ENE 0 0 0 0 0 0 0 0 0 0 0 0 0 0 2	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1	ESE 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	SE 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	SSE 0 0 0 0 0 0 0 0 0 0 5 SSE 0 2	S 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	SSW 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	SW 0 1 2 1 3 0 7 7 SW 0 1	WSW 0 0 1 1 0 0 2 WSW 0 1	W 0 0 3 1 0 0 4 W 0 2	WNW 0 0 1 0 0 0 0 0 1 0 0 0 0 0 0	NW 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	NNW 0 0 0 0 0 0 0 1 1 1 1 0 1	TOTAL 0 1 2 8 4 1 20 TOTAL 0 18
Calm-0.95 0.95-3.5 3.5-7.5 7.5-12.5 12.5-18.5 18.5-24 >24 TOTAL Class All mph Calm-0.95 0.95-3.5 3.5-7.5	0 1 0 0 1 0 2 Freq: N 0 1 6	0 0 1 0 1 0 0 2 1.000 NNE 0 0 16	NE 0 0 0 1 0 0 0 1 1 NE 0 0 13	ENE 0 0 0 0 0 0 0 0 0 0 0 0 2 12	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 1	ESE 0 0 0 0 0 0 0 0 0 0 0 0 0 0 8	SE 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	SSE 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 2 11	S 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	SSW 0 0 0 0 0 0 0 0 0 5	SW 0 1 2 1 3 0 7 7 5 W 0 1 1 1	WSW 0 0 1 1 0 0 2 WSW 0 1 6	W 0 0 3 1 0 0 4 4 W 0 2 9	WNW 0 0 1 0 0 0 0 1 0 0 0 5	NW 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 9	NNW 0 0 0 0 0 0 1 1 1 1 5	TOTAL 0 1 2 8 4 4 1 20 TOTAL 0 18 133
Calm-0.95 0.95-3.5 3.5-7.5 12.5-18.5 18.5-24 >24 TOTAL Class All mph Calm-0.95 0.95-3.5 3.5-7.5 7.5-12.5	N 0 1 0 0 1 0 2 Freq: N 0 1 6 15	0 0 1 0 1 0 0 2 1.000 NNE 0 0 16 11	NE 0 0 0 1 0 0 0 1 1 NE 0 0 1 3 17	ENE 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	ESE 0 0 0 0 0 0 0 0 0 0 0 8 19	SE 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	SSE 0 11 17	S 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	SSW 0 0 0 0 0 0 0 0 0 0 5 39	SW 0 1 2 1 3 0 7 7 5 W 0 1 1 34	WSW 0 0 1 1 0 0 2 2 WSW 0 1 6 30	W 0 0 3 1 0 0 4 4 W 0 2 9 9 42	WNW 0 0 1 0 0 0 0 1 1 WNW 0 0 5 20	NW 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 9 9 9	NNW 0 0 0 0 0 0 0 0 1 1 5 8	TOTAL 0 1 2 8 4 4 1 20 TOTAL 0 18 133 355
Calm-0.95 0.95-3.5 3.5-7.5 7.5-12.5 12.5-18.5 18.5-24 >24 TOTAL Class All mph Calm-0.95 0.95-3.5 3.5-7.5 7.5-12.5 12.5-18.5	N 0 1 0 0 1 0 2 Freq: N 0 1 6 15 14	NNE 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 0 16 11 14	NE 0 0 0 1 0 0 0 1 1 NE 0 0 13 17 7	ENE 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	ESE 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	SE 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	SSE 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 11 17 22	S 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	SSW 0 0 0 0 0 0 0 0 0 0 0 0 0 0 5 39 93	SW 0 1 2 1 3 0 7 7 5 W 0 1 1 3 4 111	WSW 0 0 1 1 0 0 2 2 WSW 0 1 6 30 118	W 0 0 3 1 0 0 4 4 W 0 2 9 9 42 109	WNW 0 0 1 0 0 0 0 1 1 0 0 0 1 0 0 5 20 45	NW 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 9 9 9 30	NNW 0 0 0 0 0 0 1 1 5 8 16	TOTAL 0 1 2 8 4 4 1 20 TOTAL 0 18 133 355 710
Calm-0.95 0.95-3.5 3.5-7.5 7.5-12.5 12.5-18.5 18.5-24 >24 TOTAL Class All mph Calm-0.95 0.95-3.5 3.5-7.5 7.5-12.5 12.5-18.5 18.5-24	N 0 1 0 0 1 0 2 Freq: N 0 1 6 15 14 9	NNE 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 0 16 11 14 4	NE 0 0 0 1 0 0 0 1 1 NE 0 0 0 13 17 7 0	ENE 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	ESE 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	SE 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	SSE 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 11 17 22 19	S 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	SSW 0 0 0 0 0 0 0 0 0 0 0 5 39 93 47	SW 0 1 2 1 3 0 7 7 5 W 0 1 1 1 3 4 111 61	WSW 0 0 1 1 0 0 2 2 WSW 0 1 6 30 118 59	W 0 0 3 1 0 0 4 4 W 0 2 9 9 42 109 62	WNW 0 0 1 0 0 0 0 1 0 0 1 0 0 5 20 45 24	NW 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	NNW 0 0 0 0 0 0 0 0 1 1 5 8 16 12	TOTAL 0 1 2 8 4 4 1 20 TOTAL 0 18 133 355 710 394
Calm-0.95 0.95-3.5 3.5-7.5 7.5-12.5 12.5-18.5 18.5-24 >24 TOTAL Class All mph Calm-0.95 0.95-3.5 3.5-7.5 7.5-12.5 12.5-18.5 18.5-24 >24	0 1 0 0 1 0 2 Freq: N 0 1 5 14 9 35	NNE 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 0 16 11 14 4 2	NE 0 0 0 1 0 0 0 1 0 0 1 3 17 7 0 0 0	ENE 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	ESE 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	SE 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	SSE 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 10 2 11 17 22 19 4	S 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	SSW 0 0 0 0 0 0 0 0 0 0 0 5 39 93 47 20	SW 0 1 2 1 3 0 7 7 SW 0 1 1 34 111 61 4	WSW 0 0 1 1 0 0 2 WSW 0 1 6 30 118 59 2	W 0 0 3 1 0 0 4 4 W 0 2 9 9 42 109 62 34	WNW 0 0 1 0 0 0 0 0 1 0 0 0 1 0 0 0 5 20 45 24 45	NW 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	NNW 0 0 0 0 0 0 0 0 1 1 5 8 16 12 17	TOTAL 0 1 2 8 4 4 1 20 TOTAL 0 18 133 355 710 394 225

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Class A Freq: 0.312

0100071	1104.	0.012															
mph	N	NNE	NE	ENE	E	ESE	SE	SSE	s	ssw	sw	wsw	w	WNW	NW	NNW	TOTAL
Calm-0.95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.95-3.5	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	2
3.5-7.5	6	9	6	3	1	4	1	0	1	0	0	1	3	2	3	5	45
7.5-12.5	8	10	16	29	24	7	5	6	8	5	5	8	12	4	16	15	_178
12.5-18.5	9	2	6	3	4	3	5	40	48	_26_	13	9	15	11	_25	15	234
18.5-24	10	5	5	4	4	4	_0_	12	26	7	2	14	8	5	9	13	128
>24	6	13	9	4	1	1	0	1	_9	7	0	13	1	5	9	6	85
TOTAL	39	39	42	43	34	19	11	59	93	45	20	45	39	27	62	55	672
Class B	Freq:	0.065		r				r	,	1						·	
mph	N	NNE	NE	ENE	E	ESE	SE	SSE	s	ssw	sw	wsw	W	WNW	NW	NNW	TOTAL
Calm-0.95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.95-3.5	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
3.5-7.5	1	2	3	3	0	1	0	0	0	1	0	0	1	1	1	2	16
7.5-12.5	2	0	1	7	14	3	0	2	2	3	2	0	1	0	4	0	41
12.5-18.5	2	2	3	2	1	0	0	5	8	7	3		2	2	7	5	50
18.5-24	0	0	1	0	1	0	0	2	6	2	0	2	2	<u> </u>	0	-2	18
>24	0	0	2	0	0	0	0	0	_2_	5	0	2	0	0	. 1 .	1	13
TOTAL	6	5	.10	12	16	4	0	9	18	18	5	5	6	3	13	10	140
																	· · · · ·
Class C	Freq:	0.046		<u> </u>		1				<u> </u>				T		·	
mph		NNE	, NE	ENE	E	ESE	SE	SSE	<u>S</u>	SSW	SW	wsw	W	WNW	NW	NNW	TOTAL
Calm-0.95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.95-3.5	1	1	0	1	0	0	0	0	1	0	0	0	0	0	0	0	
3.5-7.5	_0	1	0	0	1	2	0	1	0	0	0	1	0	0	1	_2_	9
7.5-12.5	1	0	0	2	4	1	1	1	2	1	_2	0	1	0	3	2	21
12.5-18.5	2	2	2	2	1	3	0	6	9	5	2		0	4		1	45
18.5-24			1		0		0		6				1		1		15
>24			0	<u> </u>	0		0		0	<u> </u>	L	1_2_	0	<u> </u>	1	<u> 2</u>	5
TOTAL	4	4	3	6	6	7	1	9	18	7	4	5	2	4	11	8	99
• • -	_																
Class D	Freq:	0.265	r	,		1		r1									
mph	<u>N</u>	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	wsw	<u> </u>	<u>wnw</u>	NW	NNW	TOTAL
Calm-0.95	_0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.95-3.5	2	0	0	0	0	2	1	1	1	2	1	0	0	11	1	3	_ 15
3.5-7.5	6	6	7	6	5	3	3	6	10	5	1	0	2		1	4	66
7.5-12.5	4	6	2	9	14	19	10	10	11	4	0	11	5		7	3	106
12.5-18.5	4	4	6	1	4	7	7	_21	60	39	12	10	11	4	9	6	_205_
18.5-24	2	0	8	3	6	1	3	5	_49	25	7	2	1	7	8	8	135
>24	0	0	0	0	0	0	1	1	17	6	0	6	6	1	4	2	44
I 													-				
TOTAL	18	16	23	19	29	32	25	44	148	81	21	19	25	15	30	26	571

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Class E Freq: 0.234

UIASS E	rieq.	0.234															
mph	N	NNE	NE	ENE	Е	ESE	SE	SSE	s	ssw	sw	wsw	w	WNW	NW	NNW	TOTAL
Calm-0.95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.95-3.5	0	0	0	1	0	0	0	2	3	1	0	1	0	0	0	0	8
3.5-7.5	1	2	6	8	5	9	2	4	2	3	0	0	1	3	1	0	47
7.5-12.5	5	2	4	2	6	10	10	9	10	4	3	3	1	6	2	3	80
12.5-18.5	3	5	4	0	2	3	16	17	21	10	13	28	9	13	5	2	151
18.5-24	0	0	2	0	0	0	0	3	49	13	17	19	10	8	5	1	127
>24	0	0	0	0	0	0	0	0	55	2	1	10	10	6	7	1	92
TOTAL	9	9	16	11	13	22	28	35	140	33	34	61	31	36	20	7	505
Class F	Freq:	0.063															
mph	N	NNE	NE	ENE	Е	ESE	SE	SSE	S	ssw	sw	wsw	w	WNW	NW	NNW	TOTAL
Calm-0.95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.95-3.5	0	0	0	0	0	0	2	0	0	1	2	0	3	0	0	1	9
3.5-7.5	0	0	0	2	3	5	2	3	1	2	1	2	1	0	1	1	24
7.5-12.5	0	0	2	0	0	0	5	1	3	2	2	7	3	2	2	1	30
12.5-18.5	1	0	0	0	0	1	2	1	3	5	10	10	5	4	0	0	42
18.5-24	0	0	0	0	0	0	0	0	7	7	4	1	0	. 3	: 0	0	22
>24	0	0	0	0	0	0	0	0	0	2	1	0	0	3	2	0	8
TOTAL	-1	0	2	2	3	6	11	5	14	19	20	20	12	12	5	. 3	135
Class G	Freq:	0.016				<i>i</i>							r	· ·	- 1X 1.		
mph 🖏	3-2 N -	NNE	NE	ENE	E	ESE	SE	SSE	s	ssw	sw	wsw	w	WNW	NW	NNW	TOTAL
Calm-0.95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.95-3.5	0	0	0	0	1	1	0	0	0	2	0	0	0	0	0	0	4
3.5-7.5	1	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	4
7.5-12.5	0	0	0	0	0	0	0	0	1	0	2	0	3	0	0	0	6
12.5-18.5	0	0	0	0	0	0	0	0	0	6	2	4	0	3	0	0	15
18.5-24	0	0	0	0	0	0	0	0	1	1	2	0	0	0	0	0	4
>24	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
TOTAL	1	0	0	0	1	1	0	1	3	9	6	5	3	3	0	1	34
Class All	Freq:	1.000	-	·					·								
mph	N	NNE	NE	ENE	E	ESE	SE	SSE	s	ssw	sw	wsw	w	WNW	NW	NNW	TOTAL
Calm-0.95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.95-3.5	4	2	0	2	1	3	3	3	6	6	3	1	3	1	1	5	44
3.5-7.5	15	20	22	22	15	24	8	15	14	11	2	5	8	7	8	15	211
7.5-12.5	20	18	25	49	62	40	31	29	37	19	16	19	26	13	34	24	462
12.5-18.5	21	15	21	8	12	17	30	90	149	98	55	63	42	41	51	29	742
											_	-		-			
18.5-24	12	5	17	8	11	6	3	23	144	56	32	39	22	23	23	25	_449
18.5-24 >24	12 6	5 13	17 11	8 4	<u>11</u> 1	6 1	3 1	23 2	144 84	56 22	32 2	39 33	22 17	23 15	23 24	25 12	449 248

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Class A Freq: 0.261	
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	0100071	ricq.	0.2.01															
	mph	N	NNE	NE	ENE	E	ESE	SE	SSE	S	ssw	sw	wsw	w	WNW	NW	NNW	TOTAL
	Calm-0.95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	_0.95-3.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3.5-7.5	2	5	1	1	3	1	1	0	0	0	1	3	0	1	0	2	21
	7.5-12.5	4	6	4	1	4	3	1	3	2	10	1	5		3	1	1	50
	12.5-18.5	_5	6	0	_2	_5	_2	1	2	16	18	4	6	0	0	2	5	_74
	18.5-24	1	0	1	0	0	0	0	0	3	11	2	1	0	1	3	6	29
	>24	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2
	TOTAL	12	17	6	4	12	6	3	5	21	41	8	15	1	5	6	14	176
	Class B	Freq:	0.049															
	mph	N	NNE	NE	ENE	E	ESE	SE	SSE	S	ssw	SW	wsw	W	WNW	NW	NNW	TOTAL
	Calm-0.95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0.95-3.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3.5-7.5	0	1	2	0	0	0	. 1	0	1	0	0	1	0	0	0	0	6
	7.5-12.5	0	0	0	_0	1	1	2	1	_2	0	1	1	0	0	0	0	9
	12.5-18.5	0	0	0	1	1	0	0	1	2	2	1	1	0	1	0	0	10
- 	18.5-24	0	0	0	0	0	0	0	0	_3	2	0	0	0	0	1	0	6
	>24	0	0	0	0	0	0	0	0	0	1	0	0	0	· 0	0	1	2
	TOTAL	0	1	2	1	2	1	3	2	8	5	2	3	0	1	1	1	33
e.aw.,	Class C	Freq:	0.047												(*			
₹	Class C	Freq:	0.047 NNE	NE	ENE		ESE	SE	SSE	S	ssw	SW	wsw	w	WNW	NW	NNW	TOTAL
eavy t t t t t t t t t t t t t t t t t t t	Class C Semph Calm-0.95	Freq: N	0.047 NNE	NE 0	ENE 0	<u>Е</u> 0	ESE 0	SE 0	SSE 0	S 0	SSW 0	SW 0	wsw o	W 0	WNW 0	.NW	NNW 0	TOTAL 0
carry Çe Qe	Class C 	Freq: N 0 0	0.047 NNE 0	NE 0	ENE 0 0	E0 0	ESE 0 0	SE 0 0	SSE 0 0	S 0 0	SSW 0 0	SW - 0 0	WSW 0 0	<u>w</u> 0 0	WNW 0 0	NW 0	NNW 0 0	TOTAL 0 0
دغير. کړ پ	Class C Calm-0.95 0.95-3.5 3.5-7.5	Freq: N O O	0.047 NNE 0 1	NE 0 0	ENE 0 0	E0 0 0	ESE 0 0 2	SE 0 0	SSE 0 0 1	S 0 2	SSW 0 1	SW 0 0 1	WSW 0 0	W 0 0 0	WNW 0 0	NW 0 0	NNW 0 0	TOTAL 0 0 9
tanı tanı tanı tanı tanı tanı tanı tanı	Class C mph Calm-0.95 0.95-3.5 3.5-7.5 7.5-12.5	Freq: N 0 0 0	0.047 NNE 0 1 0	NE 0 0 1 0	ENE 0 0 0 2	E 0 0 0 0	ESE 0 0 2 0	SE 0 0 0 1	SSE 0 0 1 0	S 0 0 2 3	SSW 0 1 3	SW 0 0 1 2	WSW 0 0 0 1	W 0 0 0 1	WNW 0 0 0	NW 0 0 0	NNW 0 0 0	TOTAL 0 0 9 13
eary Re Re	Class C mph Calm-0.95 0.95-3.5 3.5-7.5 7.5-12.5 12.5-18.5	Freq: N 0 0 0 0	0.047 NNE 0 0 1 0 0	NE 0 1 0	ENE 0 0 2 0	E 0 0 0 0 0	ESE 0 2 0 0	SE 0 0 1 0	SSE 0 0 1 0 0	S 0 2 3 1	SSW 0 1 3 1	SW 0 0 1 2 4	WSW 0 0 1 1 0	W 0 0 0 1 1	WNW 0 0 0 0	NW 0 0 0 0 0	NNW 0 0 0 0	TOTAL 0 9 13 7
i ing	Class C calm-0.95 0.95-3.5 3.5-7.5 7.5-12.5 12.5-18.5 18.5-24	Freq: N 0 0 0 0 0 0	0.047 NNE 0 0 1 0 0 0 0	NE 0 1 0 0 0	ENE 0 0 2 0 0 0	E 0 0 0 0 0 0 0	ESE 0 2 0 0 0 0	SE 0 0 0 1 0 0	SSE 0 1 0 0 0 0	S 0 2 3 1 1	SSW 0 1 3 1 2	SW 0 0 1 2 4 0	WSW 0 0 0 1 0 0	W 0 0 1 0	WNW 0 0 0 0 0 0	NW 0 0 0 0 0 0	NNW 0 0 0 0 0 0	TOTAL 0 9 13 7 3
i any	Class C Calm-0.95 0.95-3.5 3.5-7.5 7.5-12.5 12.5-18.5 18.5-24 >24	Freq: N 0 0 0 0 0 0 0 0 0 0 0	0.047 NNE 0 0 1 0 0 0 0 0	NE 0 1 0 0 0 0 0	ENE 0 0 2 2 0 0 0 0 0	E 0 0 0 0 0 0 0 0	ESE 0 2 0 0 0 0 0	SE 0 0 1 0 0 0 0	SSE 0 1 0 0 0 0 0 0	S 0 2 3 1 1 0	SSW 0 1 3 1 2 0	SW 0 0 1 2 4 0 0	WSW 0 0 1 0 0 0 0	W 0 0 1 1 1 0 0	WNW 0 0 0 0 0 0 0 0	NW 0 0 0 0 0 0 0 0	NNW 0 0 0 0 0 0 0	TOTAL 0 9 13 7 3 0
carry Construction Construction	Class C calm-0.95 0.95-3.5 3.5-7.5 7.5-12.5 12.5-18.5 18.5-24 >24 TOTAL	Freq: N 0 0 0 0 0 0 0 0 0 0 0	0.047 NNE 0 0 1 0 0 0 0 0 0 1	NE 0 1 0 0 0 0 0 1	ENE 0 0 2 0 0 0 0 0 0 2	E 0 0 0 0 0 0 0 0 0	ESE 0 2 0 0 0 0 0 2 2 0 0 2	SE 0 0 1 0 0 0 0 1	SSE 0 1 0 0 0 0 0 0 0 1	S 0 2 3 1 1 0 7	SSW 0 1 3 1 2 0 7	SW 0 1 2 4 0 0 7	WSW 0 0 1 0 0 0 0 0 1	W 0 0 1 1 1 0 0 2	WNW 0 0 0 0 0 0 0 0 0 0	NW 0 0 0 0 0 0 0 0 0 0	NNW 0 0 0 0 0 0 0 0 0	TOTAL 0 9 13 7 3 0 32
i ing	Class C calm-0.95 0.95-3.5 3.5-7.5 7.5-12.5 12.5-18.5 18.5-24 >24 TOTAL	Freq: N 0 0 0 0 0 0 0 0 0	0.047 NNE 0 0 1 0 0 0 0 0 1	NE 0 0 1 0 0 0 0 1	ENE 0 0 2 0 0 0 0 0 2 2	E 0 0 0 0 0 0 0 0 0	ESE 0 2 0 0 0 0 0 2 2	SE 0 0 1 0 0 0 0 1	SSE 0 0 1 0 0 0 0 0 1	S 0 2 3 1 1 0 7	SSW 0 1 3 1 2 0 7	SW 0 0 1 2 4 0 0 7	WSW 0 0 1 0 0 0 0 1	W 0 0 1 1 0 0 2	WNW 0 0 0 0 0 0 0 0 0	NW 0 0 0 0 0 0 0 0 0	NNW 0 0 0 0 0 0 0 0	TOTAL 0 9 13 7 3 0 32
i in the second s	Class C Calm-0.95 0.95-3.5 3.5-7.5 7.5-12.5 12.5-18.5 18.5-24 >24 TOTAL Class D	Freq: N 0 0 0 0 0 0 0 Freq:	0.047 NNE 0 1 0 0 0 0 0 1 0.241	NE 0 1 0 0 0 0 1	ENE 0 0 2 0 0 0 0 2	E 0 0 0 0 0 0 0 0	ESE 0 2 0 0 0 0 2 2	SE 0 0 1 0 0 0 0 1	SSE 0 0 1 0 0 0 0 0 1	S 0 2 3 1 1 0 7	SSW 0 1 3 1 2 0 7	SW 0 0 1 2 4 0 0 7	WSW 0 0 1 0 0 0 1	W 0 0 1 1 0 0 2	WNW 0 0 0 0 0 0 0 0 0	NW 0 0 0 0 0 0 0 0	NNW 0 0 0 0 0 0 0 0	TOTAL 0 9 13 7 3 0 32
	Class C Calm-0.95 0.95-3.5 3.5-7.5 7.5-12.5 12.5-18.5 18.5-24 >24 TOTAL Class D mph	Freq: N 0 0 0 0 0 0 0 Freq: N	0.047 NNE 0 0 1 0 0 0 0 0 1 0 0 0 0 0 1 0 0 0 0	NE 0 1 0 0 0 1 1 NE	ENE 0 0 2 0 0 0 0 2 2 2	E 0 0 0 0 0 0 0 0 0 0 0 0 0 0	ESE 0 2 0 0 0 0 2 2 2 ESE	SE 0 0 1 0 0 0 1 5 5 5	SSE 0 1 0 0 0 0 1 1 SSE	S 0 2 3 1 1 0 7 5	SSW 0 1 3 1 2 0 7 SSW	SW 0 0 1 2 4 0 0 7 7 SW	WSW 0 0 1 0 0 0 1 1 0 0 0	W 0 0 1 1 1 0 0 2 W	WNW 0 0 0 0 0 0 0 0 0 0 0 0 0 0	NW 0 0 0 0 0 0 0 0 0 0 0	NNW 0 0 0 0 0 0 0 0 0	TOTAL 0 9 13 7 3 0 32 TOTAL
i i i i i i i i i i i i i i i i i i i	Class C Calm-0.95 0.95-3.5 3.5-7.5 7.5-12.5 12.5-18.5 18.5-24 >24 TOTAL Class D mph Calm-0.95	Freq: N 0 0 0 0 0 0 0 Freq: N 0	0.047 NNE 0 0 1 0 0 0 0 0 1 0.241 NNE 0	NE 0 1 0 0 0 0 1 1 NE 0	ENE 0 0 2 0 0 0 0 2 2 2 2 8 8 8 8 8 8 8 8 8	E 0 0 0 0 0 0 0 0 0 0 0 0 0 0	ESE 0 2 0 0 0 0 2 2 2 2 2 2	SE 0 0 1 0 0 0 1 5 5 5 5 0	SSE 0 1 0 0 0 0 1 1 SSE 0	S 0 2 3 1 1 7 7 S 0	SSW 0 1 3 1 2 0 7 7 SSW 0	SW 0 1 2 4 0 0 7 7 5 W 0	WSW 0 0 1 0 0 0 1 1 WSW 0	W 0 0 1 1 1 0 0 2 W 0	WNW 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	NW 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	NNW 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	TOTAL 0 9 13 7 3 0 32 32 TOTAL 0
i ing	Class C Calm-0.95 0.95-3.5 3.5-7.5 7.5-12.5 12.5-18.5 18.5-24 >24 TOTAL Class D mph Calm-0.95 0.95-3.5	Freq: N 0 0 0 0 0 0 0 0 Freq: N 0 0	0.047 NNE 0 1 0 0 0 0 0 1 0.241 NNE 0 0 0	NE 0 1 0 0 0 0 1 1 NE 0 0	ENE 0 0 2 2 0 0 0 0 2 2 2 2 0 0 0 2 2 0	E 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	ESE 0 2 0 0 0 0 0 2 2 2 ESE 0 0	SE 0 0 1 0 0 0 0 1 5 5 5 0 1	SSE 0 0 1 0 0 0 0 0 1 1 SSE 0 0	S 0 2 3 1 1 1 0 7 7 5 0 0	SSW 0 1 3 1 2 0 7 7 SSW 0 0	SW 0 1 2 4 0 0 7 7 5 W 0 1	WSW 0 0 1 0 0 0 1 1 8 8 8 8 8 8 8 8 8 8 8 8	W 0 0 1 1 1 0 0 2 2 W 0 0	WNW 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	NW 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	NNW 0 0 0 0 0 0 0 0 0 0 0 0 0 0	TOTAL 0 9 13 7 3 0 32 TOTAL 0 2
iary i	Class C Calm-0.95 0.95-3.5 3.5-7.5 7.5-12.5 12.5-18.5 18.5-24 >24 TOTAL Class D mph Calm-0.95 0.95-3.5 3.5-7.5	Freq: N 0 0 0 0 0 0 0 0 Freq: N 0 0 0 0 0 0 0 0 0 0 0 0 0	0.047 NNE 0 0 1 0 0 0 0 1 0.241 NNE 0 0 3	NE 0 1 0 0 0 0 1 1 1 NE 0 0 0 0	ENE 0 0 2 0 0 0 0 2 2 2 ENE 0 0 1	E 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 3	ESE 0 2 0 0 0 0 2 2 2 5 5 5 6 0 0 0 0 0 0 0	SE 0 0 1 0 0 0 0 1 1 SE 0 1 4	SSE 0 0 1 0 0 0 0 0 1 1 SSE 0 0 1	S 0 2 3 1 1 1 0 7 7 5 0 0 0	SSW 0 1 3 1 2 0 7 7 SSW 0 0 5	SW 0 1 2 4 0 0 7 7 5 W 0 1 0	WSW 0 0 1 0 0 0 1 1 WSW 0 0 5	W 0 0 1 1 1 0 0 2 2 W 0 0 3	WNW 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	NW 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	NNW 0 0 0 0 0 0 0 0 0 0 0 0 1	TOTAL 0 9 13 7 3 0 32 TOTAL 0 2 26
	Class C Calm-0.95 0.95-3.5 3.5-7.5 7.5-12.5 12.5-18.5 18.5-24 >24 TOTAL Class D mph Calm-0.95 0.95-3.5 3.5-7.5 7.5-12.5	Freq: N 0 0 0 0 0 0 0 0 0 Freq: N 0 0 0 4	0.047 NNE 0 0 1 0 0 0 0 1 0 0 0 1 NNE 0 0 3 0 0	NE 0 1 0 0 0 0 1 1 1 0 0 0 0 0 0 0 0	ENE 0 0 2 0 0 0 0 2 2 ENE 0 0 1 1 1	E 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1	ESE 0 0 2 0 0 0 0 2 2 2 5 5 6 0 0 0 0 3	SE 0 0 1 0 0 0 0 1 1 SE 0 1 4 2	SSE 0 0 1 0 0 0 0 1 5 SSE 0 0 1 1 1	S 0 2 3 1 1 1 0 7 7 5 0 0 0 2	SSW 0 1 3 1 2 0 7 7 SSW 0 0 5 6	SW 0 0 1 2 4 0 0 7 7 7 5 W 0 1 0 3	WSW 0 0 1 0 0 0 1 1 0 0 0 5 5 5	W 0 0 1 1 1 0 0 2 2 W 0 0 3 3 3	WNW 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	NW 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1	NNW 0 0 0 0 0 0 0 0 0 0 0 1 2	TOTAL 0 9 13 7 3 0 32 TOTAL 0 2 26 36
	Class C Calm-0.95 0.95-3.5 3.5-7.5 7.5-12.5 12.5-18.5 18.5-24 >24 TOTAL Class D mph Calm-0.95 0.95-3.5 3.5-7.5 7.5-12.5 12.5-18.5	Freq: N 0 0 0 0 0 0 0 0 Freq: N 0 0 4 1	0.047 NNE 0 0 1 0 0 0 0 1 0 0 1 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0	NE 0 1 0 0 0 0 1 1 1 0 0 0 0 0 0 0 0 0 0	ENE 0 0 2 0 0 0 0 2 2 2 2 2 2 0 0 1 1 1 0 0	E 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	ESE 0 0 2 0 0 0 0 2 2 2 2 2 0 0 0 0 3 1	SE 0 0 1 0 0 0 0 1 1 4 2 0	SSE 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 1 1 1	S 0 2 3 1 0 7 S 0 0 2 3 1 0 7 S 0 0 0 0 6	SSW 0 1 3 1 2 0 7 7 SSW 0 0 5 6 23	SW 0 1 2 4 0 0 7 7 5 W 0 1 0 3 3 3	WSW 0 0 1 0 0 0 1 1 0 0 0 5 5 5 3	W 0 0 0 1 1 0 2 W 0 0 3 3 2	WNW 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	NW 0 0 0 0 0 0 0 0 0 0 0 0 0 1 2	NNW 0 0 0 0 0 0 0 0 0 0 0 0 1 2 2 1	TOTAL 0 9 13 7 3 0 32 TOTAL 0 2 26 36 54
	Class C Calm-0.95 0.95-3.5 3.5-7.5 7.5-12.5 12.5-18.5 18.5-24 >24 TOTAL Class D mph Calm-0.95 0.95-3.5 3.5-7.5 7.5-12.5 12.5-18.5 18.5-24	Freq: N 0 0 0 0 0 0 0 0 0 Freq: N 0 0 0 4 1 0	0.047 NNE 0 0 1 0 0 0 0 1 0 0 1 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0	NE 0 1 0 0 0 0 0 1 1 1 0 0 0 0 0 0 0 0 0	ENE 0 0 2 2 0 0 0 0 2 2 2 0 0 0 2 2 0 0 0 1 1 1 0 0 0	E 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	ESE 0 0 2 0 0 0 0 2 2 2 2 2 0 0 0 0 0 0 3 1 1 0	SE 0 0 1 0 0 0 0 1 1 5 E 0 1 4 2 0 0	SSE 0 0 1 0 0 0 0 0 1 1 5SE 0 0 0 1 1 1 1 1 0	S 0 2 3 1 1 1 0 7 7 5 0 0 0 0 2 6 3	SSW 0 1 3 1 2 0 7 7 8 SSW 0 0 5 6 23 24	SW 0 1 2 4 0 0 7 7 5 W 0 1 0 3 3 3 1	WSW 0 0 1 0 0 0 1 1 0 0 5 5 3 3 0	W 0 0 1 1 1 0 0 2 2 W 0 0 3 3 3 2 0	WNW 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	NW 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 2 3	NNW 0 0 0 0 0 0 0 0 0 0 0 0 0 1 1 2 1 0	TOTAL 0 9 13 7 3 0 32 TOTAL 0 2 26 36 54 37
iany	Class C Calm-0.95 0.95-3.5 3.5-7.5 7.5-12.5 12.5-18.5 18.5-24 >24 TOTAL Class D mph Calm-0.95 0.95-3.5 3.5-7.5 7.5-12.5 12.5-18.5 18.5-24 >24	Freq: N 0 0 0 0 0 0 0 0 Freq: N 0 0 0 4 1 0 0 0 0 0 0 0 0 0 0 0 0 0	0.047 NNE 0 0 1 0 0 0 0 1 0 0 0 1 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0	NE 0 0 1 0 0 0 0 1 1 1 0 0 0 0 0 0 0 0 0	ENE 0 0 2 0 0 0 0 2 2 0 0 0 2 2 0 0 1 1 1 0 0 0 1 1 0 0 0 0	E 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 3 1 4 0 0	ESE 0 0 2 0 0 0 0 2 2 2 2 2 0 0 0 2 0 0 3 1 0 0 3 1 0 0	SE 0 0 0 0 0 0 1 0 0 1 SE 0 1 4 2 0 0 0 0 0 0 0 0 0	SSE 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 1 1 1 0 0 0 0 0 0 0	S 0 2 3 1 1 1 0 7 7 7 7 5 0 0 0 2 6 3 3 0 0	SSW 0 1 3 1 2 0 7 7 5 5 6 23 24 5	SW 0 1 2 4 0 0 7 7 7 8 W 0 1 0 3 3 1 0	WSW 0 0 1 0 0 0 0 1 1 0 0 5 5 5 3 0 0 0	W 0 0 1 1 1 0 2 2 W 0 0 3 3 3 2 0 2	WNW 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	NW 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 2 3 0	NNW 0 0 0 0 0 0 0 0 0 0 0 1 2 1 0 0 0	TOTAL 0 9 13 7 3 0 32 TOTAL 0 2 26 36 54 37 8

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July-September 2002

Class E Freq: 0.261

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TOTAL

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01000 2	1,104.																
mph	N	NNE	NE	ENE	Е	ESE	SE	SSE	S	ssw	sw	wsw	w	WNW	NW	NNW	TOTAL
Calm-0.95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.95-3.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2
3.5-7.5	2	1	1	1	0	1	0	0	0	2	1	0	2	1	1	0	13
7.5-12.5	3	2	0	2	_3_	0	4	0	0	4	6	2	2	7	0	1	36
12.5-18.5	4	2	2	1	4	1	0	0	4	6	14	12	6	11	4	3	74
18.5-24	2	1	0	0	0	0	0	0	1	25	6	2	1	3	0	_3_	44
>24	1	0	0	0	0	0	0	0	0	0	0	0	1	3	0	2	7
TOTAL	12	6	3	4	7	2	4	0	5	37	27	16	12	_25	7	9	176
Class F	Freq:	0.092												_			
mph	N	NNE	NE	ENE	Е	ESE	SE	SSE	s	ssw	sw	wsw	w	WNW	NW	NNW	TOTAL
Calm-0.95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.95-3.5	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2
3.5-7.5	0	0	0	0	0	1	0	1	0	0	1	0	1	1	0	0	5
7.5-12.5	0	0	0	0	2	1	0	0	0	0	0	0	1	7	2	0	13
12.5-18.5	0	0	0	0	0	0	_0	0	0	4	11	5	0	10	3	0	33
18.5-24	0	0	0	0	0	0	0	0	0	1	6	0	0	1	1	0	9
>24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	1	0	0	0	2	2	0	1	0	5	18	5	3	19	6	0	62
										•				•			
Class G	Freq:	0.049									۰.						
mph ·	N	NNE	NF	ENE	F	ESE	SE	SSE	6	00144	SW 2	wsw	w	WNW	NW	NINDAL	
Calm-0.95					-				<u> </u>	55W	0.1					INNAAA	TOTAL
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	TOTAL 0
0.95-3.5	0	0	0	0	0	0	0	0	0	0 0	0	0	0	0	0	0	TOTAL 0 0
0.95-3.5 3.5-7.5	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	0 0 0	0	<u>TOTAL</u> 0 0 1
0.95-3.5 3.5-7.5 7.5-12.5	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 0	0 0 0 1	0 0 0 7	0 0 0 5	0 0 1 3	0 0 0 2	0 0 0 0	0	TOTAL 0 1 18
0.95-3.5 3.5-7.5 7.5-12.5 12.5-18.5	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 0 0 0	0 0 0 0 0	0 0 0 1 4	0 0 0 7 3	0 0 5 2	0 0 1 3 4	0 0 0 2 1	0 0 0 0	0 0 0 0	TOTAL 0 1 18 14
0.95-3.5 3.5-7.5 7.5-12.5 12.5-18.5 18.5-24	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0 0	0 0 0 0 0 0	0 0 0 1 4 0	0 0 0 7 3 0	0 0 5 2 0	0 0 1 3 4 0	0 0 2 1 0	0 0 0 0 0	0 0 0 0 0	TOTAL 0 1 18 14 0
0.95-3.5 3.5-7.5 7.5-12.5 12.5-18.5 18.5-24 >24	0 0 0 0 0	0 0 0 0 0 0	0 0 0 0 0 0 0	0 0 0 0 0 0	0 0 0 0 0 0	0 0 0 0 0 0	0 0 0 0 0 0	0 0 0 0 0 0 0	0 0 0 0 0 0 0	0 0 1 4 0	0 0 7 3 0 0	0 0 5 2 0	0 0 1 3 4 0 0	0 0 2 1 0	0 0 0 0 0 0	0 0 0 0 0 0	TOTAL 0 1 18 14 0 0
0.95-3.5 3.5-7.5 7.5-12.5 12.5-18.5 18.5-24 >24 TOTAL	0 0 0 0 0 0	0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0	0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 1 4 0 0 5	0 0 7 3 0 0 10	0 0 5 2 0 0 7	0 0 1 3 4 0 0 8	0 0 2 1 0 0 3	0 0 0 0 0 0 0 0		TOTAL 0 1 18 14 0 0 33
0.95-3.5 3.5-7.5 7.5-12.5 12.5-18.5 18.5-24 >24 TOTAL	0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 1 4 0 0 5	0 0 7 3 0 0 10	0 0 5 2 0 0 7	0 0 1 3 4 0 0 8	0 0 2 1 0 0 3	0 0 0 0 0 0 0 0		TOTAL 0 1 18 14 0 0 33
0.95-3.5 3.5-7.5 7.5-12.5 12.5-18.5 18.5-24 >24 TOTAL Class All	0 0 0 0 0 0 0 5 Freq:	0 0 0 0 0 0 0 0 0 0 0		0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 1 4 0 0 5	0 0 7 3 0 0 10	0 0 5 2 0 0 7	0 0 1 3 4 0 0 8	0 0 2 1 0 0 3	0 0 0 0 0 0 0		TOTAL 0 1 18 14 0 0 33
0.95-3.5 3.5-7.5 7.5-12.5 12.5-18.5 18.5-24 >24 TOTAL Class All mph	0 0 0 0 0 0 Freq:	0 0 0 0 0 0 0 0 1.000 NNE	0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0	0 0 1 4 0 5 \$	0 0 7 3 0 0 10 SW	0 0 5 2 0 0 7 7	0 0 1 3 4 0 0 8 8	0 0 2 1 0 0 3	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0	TOTAL 0 1 18 14 0 0 33 TOTAL
0.95-3.5 3.5-7.5 7.5-12.5 12.5-18.5 18.5-24 >24 TOTAL Class All mph Calm-0.95	0 0 0 0 0 0 0 5 7 7 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 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 1 4 0 5 5 SSW	0 0 0 7 3 0 0 0 10 5 W 0	0 0 5 2 0 0 7 7 WSW	0 0 1 3 4 0 0 8 8 8 8	0 0 2 1 0 0 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	TOTAL 0 1 18 14 0 0 33 TOTAL 0
0.95-3.5 3.5-7.5 7.5-12.5 12.5-18.5 18.5-24 >24 TOTAL Class All mph Caim-0.95 0.95-3.5	0 0 0 0 0 0 0 5 Freq: N 0 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 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 1 4 0 5 \$\$\$W 0 0	0 0 0 7 3 0 0 0 10 5 W 0 1	0 0 5 2 0 0 7 7 WSW 0 0	0 0 1 3 4 0 0 8 8 8 8 8 0 1	0 0 2 1 0 0 3 3 WNW 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	TOTAL 0 1 18 14 0 0 33 TOTAL 0 6
0.95-3.5 3.5-7.5 7.5-12.5 12.5-18.5 18.5-24 >24 TOTAL Class All mph Calm-0.95 0.95-3.5 3.5-7.5	0 0 0 0 0 0 0 0 5 7 7 0 1 4	0 0 0 0 0 0 0 0 0 0 1.000 NNE 0 11	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 5	0 0 0 0 0 0 0 0 0 0 0 0 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 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 3	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 3	0 0 0 1 4 0 5 SSW 0 0 5	0 0 0 7 3 0 0 0 10 5 W 0 1 4	0 0 5 2 0 0 0 7 7 WSW 0 0 9	0 0 1 3 4 0 0 8 8 8 W 0 1 7	0 0 2 1 0 0 3 3 WNW 0 0 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 0 0 0 0 0 0	TOTAL 0 1 18 14 0 0 33 TOTAL 0 6 81
0.95-3.5 3.5-7.5 7.5-12.5 12.5-18.5 18.5-24 >24 TOTAL Class All mph Calm-0.95 0.95-3.5 3.5-7.5 7.5-12.5	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 1.000 NNE 0 11 8	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 5 4	0 0 0 0 0 0 0 0 0 0 0 0 3 6	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	ESE 0 0 0 0 0 0 0 0 0 0 0 5 8	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 3 5	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	SSW 0 0 1 4 0 5 SSW 0 0 8 24	0 0 0 7 3 0 0 0 10 5 W 0 1 4 20	0 0 5 2 0 0 7 7 WSW 0 0 9 19	0 0 1 3 4 0 0 8 8 8 W 0 1 7 11	0 0 2 1 0 0 3 3 WNW 0 0 3 21	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	NNW 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	TOTAL 0 1 18 14 0 0 33 TOTAL 0 6 81 175
0.95-3.5 3.5-7.5 7.5-12.5 12.5-18.5 18.5-24 >24 TOTAL Class All mph Calm-0.95 0.95-3.5 3.5-7.5 7.5-12.5 12.5-18.5	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 1 1.000 NNE 0 0 111 8 10	0 5 4 2	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 3 6 4	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	ESE 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	SSW 0 0 1 4 0 5 SSW 0 8 24 58	0 0 0 7 3 0 0 0 10 5 W 0 1 4 20 40	0 0 5 2 0 0 7 7 8 8 8 9 9 9 9 19 29	0 0 1 3 4 0 0 8 8 8 8 8 0 1 7 7 11 13	0 0 2 1 0 0 3 3 WNW 0 0 3 21 28	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	NNW 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	TOTAL 0 1 18 14 0 0 33 TOTAL 0 6 81 175 266
0.95-3.5 3.5-7.5 7.5-12.5 12.5-18.5 18.5-24 >24 TOTAL Class All mph Calm-0.95 0.95-3.5 3.5-7.5 7.5-12.5 12.5-18.5 18.5-24	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 4 11 10 3	0 0 0 0 0 0 0 0 0 0 11.000 NNE 0 0 111 8 10 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 0 3 6 6 4 0	2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	ESE 0 0 0 0 0 0 0 0 0 0 0 0 0 0 5 8 8 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 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	SSW 0 0 1 4 0 5 SSW 0 5 SSW 0 58 65	0 0 0 7 3 0 0 0 10 10 5 W 0 1 1 4 20 40 15	0 0 5 2 0 0 7 7 WSW 0 0 0 9 19 29 3	0 0 1 3 4 0 0 8 8 8 8 8 0 1 7 7 11 13 1	0 0 2 1 0 0 3 3 WNW 0 0 3 21 28 5	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	NNW 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	TOTAL 0 1 18 14 0 0 33 TOTAL 0 6 81 175 266 128

18 12 52 163

80

60

36

60

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675

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3.5-7.5

7.5-12.5

12.5-18.5

18.5-24

>24

TOTAL

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Class A	Freq:	0.262															
mph	N	NNE	NE	ENE	E	ESE	SE	SSE	s	ssw	sw	wsw	w	WNW	NW	NNW	TOTAL
Calm-0.95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.95-3.5	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	2
3.5-7.5	1	0	0	0	0	0	0	1	1	2	1	1	2	0	0	0	9
7.5-12.5	8	1	0	0	0	0	0	1	3	1	0	0	0	2	0	5	21
12.5-18.5	4	0	3	0	0	1	2	0	0	6	1	1	4	13	8	16	59
18.5-24	1	2	1	0	0	0	0	0	0	3	1	1	8	3	4	3	27
>24	9	9	24	6	6	2	0	0	0	2	1	1	2	1	13	26	102
TOTAL	23	12	28	6	6	3	2	2	5	14	5	4	16	19	25	50	220
Class B	Frea:	0.063															
mph	N	NNE	NE	ENE	E	ESE	SE	SSE	s	ssw	SW	wsw	w	WNW	NW	NNW	TOTAL
Calm-0.95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.95-3.5	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	2
3.5-7.5	0	1	0	0	0	0	2	0	1	1	1	0	0	0	0	0	6
7.5-12.5	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	3
12.5-18.5	1	0	0	0	0	0	0	0	1	2	1	1	0	1	. 0	1	8
18.5-24	0	2	1	0	0	0	0	0.	. 0.	6	1	0	2	0	3	0	15
>24	2	0	4	1	_2	0	1	0	2	0.	0	2	1	1	2	1	19
TOTAL	3	4	5	1	2	0	3	3	5.	9	· 3	3	3	2	5	2	53
Class C	Freq:	0.084								4.5 F .							
mph	N	NNE	NE	ENE	E	ESE	SE	SSE ³	S 3	ssw	sw	wsw	W	WNW	NW	NNW	TOTAL
Calm-0.95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.95-3.5	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
3.5-7.5	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	_2
7.5-12.5	0	2	0	0	0	0	0	1	3	2	1	0	1	0	0	1	11
12.5-18.5	1	1	2	0	0	0	1	1	2	4	2	0	1	2	2	0	19
18.5-24	0	0	0	0	0	0	0	0	12	7	2	1	0	3	4	0	29
>24	0	0	1	0	2	1	0	0	0	1	0	2	2	0	0	0	9
TOTAL	1	3	3	0	2	1	3	2	17	15	5	3	4	5	6	1	71
	F	0.005															
Class D	⊢req:	0.285					_					<u> </u>					
mph	<u>N</u>	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	wsw	<u></u> W	WNW	NW	NNW	TOTAL
Calm-0.95	0	0	0	0	0	0	0	_0	0	0	0	0	0	0	0	0	0
0.95-3.5	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	2

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Class E Freq: 0.239

01000 E	1104.	0.200															
mph	N	NNE	NE	ENE	E	ESE	SE	SSE	s	ssw	sw	wsw	w	WNW	NW	NNW	TOTAL
Calm-0.95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.95-3.5	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
3.5-7.5	0	0	1	1	0	0.	0	2	3	2	0	1	0	1	0	0	11
7.5-12.5	0	0	1	1	2	5	0	4	6	5	5	5	7	14	3	1	59
12.5-18.5	1	0	0	0	1	0	0	3	3	6	13	8	22	23	5	3	88
18.5-24	1	0	0	0	0	2	0	0	0	15	8	1	3	3	1	5	39
>24	0	0	0	0	0	2	1	0	0	0	0	0	0	0	0	0	3
TOTAL	2	0	2	2	3	9	1	9	13	28	26	15	32	41	9	9	201

Class F Freq: 0.056

mph	N	NNE	NE	ENE	E	ESE	SE	SSE	s	ssw	sw	wsw	w	WNW	NW	NNW	TOTAL
Calm-0.95	0	• 0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.95-3.5	0	1	0	0	0	0	. 1	0	1	1	0	0	0	0	0	0	4
3.5-7.5	0	0	0	0	0	0	0	1	3	3	0	0	0	1	0	0	8
7.5-12.5	0	0	0	0	0	3	0	1	3	1	2	1	2	3	1	0	17
12.5-18.5	0	0	0	0	0	0	0	0	5	3	1	1	7	1	0	0	18
18.5-24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	0	1	0	0	0	3	1	2	12	8	3	2	9	5	1	0	47

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Class G	Freq:	0.011						6.9									
mph	N	NNE	NE	ENE	Е	ESE	SE	SSE	S	ssw	sw	wsw	w	WNW	NW	NNW	TOTAL
Calm-0.95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.95-3.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3.5-7.5	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
7.5-12.5	0	0	0	0	0	0	0	0	0	1	0	2	1	0	0	0	4
12.5-18.5	0	0	0	0	0	0	0	0	0	1	0	2	1	0	0	0	4
18.5-24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
>24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	0	0	0	0	0	0	0	0	0	2	0	4	3	0	0	0	9

Class All Freq: 1.000

mph	N	NNE	NE	ENE	E	ESE	SE	SSE	S	ssw	sw	wsw	w	WNW	NW	NNW	TOTAL
Calm-0.95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.95-3.5	0	2	0	0	0	1	з	0	4	1	1	0	0	0	0	0	12
3.5-7.5	2	1	3	2	0	0	4	7	10	9	2	2	3	3	0	0	48
7.5-12.5	9	5	5	1	3	12	1	18	23	11	8	11	12	19	8	7	153
12.5-18.5	10	8	6	0	1	4	3	11	12	31	23	17	43	52	21	21	263
18.5-24	2	6	2	0	0	5	0	0	16	48	29	10	15	13	19	12	177
>24	12	9	30	7	11	8	5	0	3	14	5	18	12	3	24	27	188
TOTAL	35	31	46	10	15	30	16	36	68	114	68	58	85	90	72	67	841

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Class A	Freq:	0.233															
mph	N	NNE	NE	ENE	Е	ESE	SE	SSE	s	ssw	sw	wsw	w	WNW	NW	NNW	TOTAL
Calm-0.95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.95-3.5	0	0	0	2	0	0	0	0	2	0	1	0	0	0	0	1	6
3.5-7.5	10	20	9	4	6	5	2	1	2	2	2	6	6	4	6	7	92
7.5-12.5	31	24	25	30	30	11	8	11	14	17	6	15	18	14	17	23	294
12.5-18.5	24	11	10	5	9	11	10	43	73	54	22	19	41	34	36	43_	445
18.5-24	12	9	7	4	4	4	0	12	35	23	9	19_	22	15	18	25	218
>24	28	23	33	10	7	3	0	1	10	11	2	14	12	19	22	33_	228
TOTAL	105	87	84	55	56	34	20	68	136	107	42	73	99	86	99	132	1283

Class B Freq: 0.054

mph	N	NNE	NE	ENE	Е	ESE	SE	SSE	S	ssw	sw	wsw	W	WNW	NW	NNW	TOTAL
Calm-0.95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.95-3.5	1	2	0	0	0	0	0	0	1	0	0	0	0	0	0	0	4
3.5 - 7.5	1	5	6	3	0	1	3	0	2	2	1	1	1	4	1	2	33
7.5-12.5	2	1	2	8	. 17	4	2	9	5	3	3	4	7	1	4	0	72
12.5-18.5	3	2	4	3	2	1	1	7	16	13	8	8	7	5	7	6	93
18.5-24	1	3	2	0	2 1	0	0	2	9	10	4	2	6	1	5	2	48
>24	7	1	6	1	2	0	1	0	5	8	0	5	1	1	3	4	45
TOTAL	15	14	20	15	·22	- 6	7	18	38	36	16	20	22	12	20	14	295

Class C Freq: 0.053

mph	N	NNE	NE	ENE	3 6. 2	:ESE	SE	SSE	s	ssw	sw	wsw	w	WNW	NW	NNW	TOTAL
Calm-0.95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.95-3.5	1	1	0	1	0	0	1	0	1	0	0	0	0	0	0	0	5
3.5-7.5	0	2	1	1	2	4	1	2	2	2	1	1	0	0	1	2	22
7.5-12.5	1	2	0	7	5	1	2	2	8	9	8	2	7	0	З	3	60
12.5-18.5	3	4	5	2	2	3	2	12	16	18	13	6	5	8	7	2	108
18.5-24	3	0	1	1	0	1	1	1	21	12_	5	3	7	6	5	1	68
>24	5	0	1	0	3	1	0	0	0	3	0	4	4	0	3	3	27
TOTAL	13	9	8	12	12	10	7	17	48	44	27	16	23	14	19	11	290

Class D Freq: 0.307

mph	N	NNE	NE	ENE	Е	ESE	SE	SSE	s	ssw	sw	wsw	w	WNW	NW	NNW	TOTAL
Calm-0.95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.95-3.5	2	0	0	0	0	3	3	2	3	2	3	1	0	1	1	4	25
3.5-7.5	8	11	16	14	11	7	13	14	13	12	1	6	6	2	4	8	146
7.5-12.5	10	11	14	20	32	33	20	25	34	32	14	20	19	7	16	7	314
12.5-18.5	15	21	10	9	28	22	16	31	87	111	41	49	34	34	28	14	550
18.5-24	6	7	10	7	21	5	15	14	70	92	39	30	23	18	35	20	412
>24	13	1	1	1	8	8	7	3	33	37	6	20	34	30	27	13	242
TOTAL	54	51	51	51	100	78	74	89	240	286_	104	126	116	92	111	66	1689

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January-December 2002

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Class E	Freq:	0.267															
mph	N	NNE	NE	ENE	Ê	ËSE	SE	SSE	S	SSW	SW	wsw	w	WNW	NW	NNW	TOTAL
Calm-0.95	0	0	0 -	0	0	0	0	0	0	0	0	0	0	0	0 ~	0	0
0.95-3.5	0	0	0	1	0	0	1	3	4	1	0	1	0	0	2	0	13
3.5-7.5	4	6	11	14	8	14	6	10	7	9	1	3	7	6	3	2	111
7.5-12.5	9	4	7	7	16	26	25	16	21	22	23	20	19	35	8	8	266
12.5-18.5	9	8	7	1	9	8	28	_29	39	57	95	107	98	65	32	10	602
18.5-24	3	1	2	0	1	4	2	_13_	56	68	61	55	42	_21	15	10	354
>24	1	0	0	0	0	2	1	_2	62	3	1	10	15	13	12	5	127
TOTAL	26	19	27	23	34	54	63	73	189	160	181	196	181	140	72	35	1473
Class F	Freq:	0.069															
mph	N N	NNE	NE	ENE	E	ESE	SE	SSE	s	ssw	sw	wsw	w	WNW	NW	NNW	TOTAL
Calm-0.95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.95-3.5	1	1	0	0	1	0	5	0	3	2	2	0	6	0	0	1	22
3.5-7.5	3	3	0	3	4	6	5	8	6	6	2	4	5	2	3	1	61
7.5-12.5	2	0.	2	4	3	4	9	6	9	8	13	10	11	13	7	2	103
12.5-18.5	1	0	0	0	1	2	3	5	10	16	44	29	16	16	3	0	146
18.5-24	0	0	0	0	0 .	0	0	0	7	10	14	2	0	4	3	- 0 ·	40
>24	0	0	0	0	0	0	0	0	0	2	2	0	0	3	2	0	9
TOTAL	7	4	2	7	9	12	22	19	35	44	77	45	38	38	- 18	4	: 381
Class G	Freq:	0.017		r			1			·				·		· · · .	
Class G mph	Freq:	0.017	-NE -	ENE	E	ESE	SE	SSE	S	ssw	SW	wsw	w	WNW	NW	NNW	TOTAL
Class G mph Calm-0.95	Freq: N	0.017 NNE-	-NE -	ENE	E0	ESE 0	SE0	SSE 0	S 0	SSW 0	SW 0	wsw o	w0	WNW 0	NW 0	NNW 0	TOTAL 0
Class G mph Calm-0.95 0.95-3.5	Freq: N 0 1	0.017 NNE ⁻ 0	-NE -	ENE 0 0	E 0 1	ESE 0 1	SE 0 0	SSE 0 0	S 0 0	SSW 0 2	SW 0 0	WSW 0 0	W 0 0	WNW 0 0	NW 0 0	NNW O O	TOTAL 0 5
Class G mph Calm-0.95 0.95-3.5 3.5-7.5	Freq: N 0 1	0.017 NNE ² 0 1	- NE -	ENE O O	E 0 1 0	ESE 0 1 0	SE 0 0	SSE 0 0	S 0 0	SSW 0 2 0	SW 0 0	WSW 0 0	W 0 0 2	WNW 0 0	NW 0 0	NNW 0 0	TOTAL 0 5 8
Class G mph Calm-0.95 0.95-3.5 3.5-7.5 7.5-12.5	Freq: N 0 1 1 0	0.017 NNE 0 1	-NE -	ENE O O O	E 0 1 0 0	ESE 0 1 0 0	SE 0 0 0	SSE 0 0 1 0	S 0 0 0 1	SSW 0 2 0 2	SW 0 1 11	WSW 0 1 8	W 0 2 10	WNW 0 0 0 3	NW 0 0 0	NNW 0 0 1 0	TOTAL 0 5 8 36
Class G mph Calm-0.95 0.95-3.5 3.5-7.5 7.5-12.5 12.5-18.5	Freq: N 0 1 1 0 0	0.017 NNE [,] 0 1 0 1	-NE * 0 0 0 1	ENE 0 0 0 0 0	E 0 1 0 0 0	ESE 0 1 0 0	SE 0 0 0 0	SSE 0 1 0 0	S 0 0 1 0	SSW 0 2 0 2 11	SW 0 1 11 6	WSW 0 1 8 9	W 0 2 10 6	WNW 0 0 3 4	NW 0 0 0 0	NNW 0 0 1 0 0	TOTAL 0 5 8 36 37
Class G mph Calm-0.95 0.95-3.5 3.5-7.5 7.5-12.5 12.5-18.5 18.5-24	Freq: N 0 1 1 0 0 1	0.017 NNE 0 1 0 1 0	- NE *	ENE 0 0 0 0 0 0 0	E 0 1 0 0 0 0	ESE 0 1 0 0 0 0	SE 0 0 0 0 0 0	SSE 0 1 0 0 0	S 0 0 1 0 1	SSW 0 2 0 2 11 1	SW 0 1 11 6 5	WSW 0 1 8 9 0	W 0 2 10 6 0	WNW 0 0 0 3 4 0	NW 0 0 0 0 0 0	NNW 0 0 1 0 0 0	TOTAL 0 5 8 36 37 8
Class G mph Calm-0.95 0.95-3.5 3.5-7.5 7.5-12.5 12.5-18.5 18.5-24 >24	Freq: N 0 1 1 0 0 1 0	0.017 NNE 0 1 0 1 0 0 0	- NE * 0 0 0 1 0 0 0 0	ENE 0 0 0 0 0 0 0 0 0	E 0 1 0 0 0 0 0	ESE 0 1 0 0 0 0 0 0	SE 0 0 0 0 0 0 0	SSE 0 1 0 0 0 0 0	S 0 0 1 0 1 1 1	SSW 0 2 0 2 11 1 0	SW 0 1 11 6 5 0	WSW 0 1 8 9 0 0	W 0 2 10 6 0 0	WNW 0 0 3 4 0 0	NW 0 0 0 0 0 0 0 0	NNW 0 1 0 0 0 1	TOTAL 0 5 8 36 37 8 2
Class G mph Calm-0.95 0.95-3.5 3.5-7.5 7.5-12.5 12.5-18.5 18.5-24 >24 TOTAL	Freq: N 0 1 1 0 0 1 0 3	0.017 NNE 0 1 0 1 0 0 0 2	- NE - 0 0 1 0 0 0 0 0 1	ENE 0 0 0 0 0 0 0 0 0 0	E 0 1 0 0 0 0 0 0 1	ESE 0 1 0 0 0 0 0 0 1	SE 0 0 0 0 0 0 0 0 0 0	SSE 0 1 0 0 0 0 0 1	S 0 0 1 1 1 1 3	SSW 0 2 0 2 11 1 0 16	SW 0 1 11 6 5 0 23	WSW 0 1 8 9 0 0 18	W 0 2 10 6 0 0 18	WNW 0 0 3 4 0 0 7	NW 0 0 0 0 0 0 0 0 0 0	NNW 0 0 1 0 0 0 1 2	TOTAL 0 5 8 36 37 8 2 96
Class G mph Calm-0.95 0.95-3.5 3.5-7.5 7.5-12.5 12.5-18.5 18.5-24 >24 TOTAL Class All	Freq: N 0 1 1 0 0 1 0 3 Freq:	0.017 NNE 0 0 1 0 1 0 0 2 1.000	- NE * 0 0 1 0 0 0 0 1	ENE 0 0 0 0 0 0 0 0	E 0 1 0 0 0 0 0 1	ESE 0 1 0 0 0 0 0 1	SE 0 0 0 0 0 0 0 0	SSE 0 1 0 0 0 0 1	S 0 0 1 1 1 3	SSW 0 2 0 2 11 1 0 16	SW 0 1 11 6 5 0 23	WSW 0 1 8 9 0 0 18	W 0 2 10 6 0 0 18	WNW 0 0 0 3 4 0 0 7	NW 0 0 0 0 0 0 0 0	NNW 0 0 1 0 0 0 1 2	TOTAL 0 5 8 36 37 8 2 96
Class G mph Calm-0.95 0.95-3.5 3.5-7.5 7.5-12.5 12.5-18.5 18.5-24 >24 TOTAL Class All mph	Freq: N 0 1 1 0 0 1 0 3 Freq: N	0.017 NNE ⁻ 0 1 0 1 0 1 0 2 1.000 NNE	- NE * 0 0 1 0 0 0 0 1 1 NE	ENE 0 0 0 0 0 0 0 0 0 0 0 0 0 0	E 0 1 0 0 0 0 1 1 E	ESE 0 1 0 0 0 0 0 1 1 ESE	SE 0 0 0 0 0 0 0 0 0 0 5 5 5	SSE 0 0 1 0 0 0 0 1 1 SSE	S 0 0 1 1 1 1 3 S	SSW 0 2 0 2 11 1 0 16 SSW	SW 0 1 11 6 5 0 23 SW	WSW 0 1 8 9 0 0 0 18 WSW	W 0 2 10 6 0 0 18	WNW 0 0 3 4 0 0 7 7	NW 0 0 0 0 0 0 0 0 0 0 0 0 0	NNW 0 0 1 0 0 1 2 NNW	TOTAL 0 5 8 36 37 8 2 96 70TAL
Class G mph Calm-0.95 0.95-3.5 3.5-7.5 7.5-12.5 12.5-18.5 18.5-24 >24 TOTAL Class All mph Calm-0.95	Freq: N 0 1 1 0 0 1 0 3 Freq: N 0	0.017 NNE ² 0 1 0 1 0 2 1.000 NNE 0	NE *	ENE 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	E 0 1 0 0 0 0 0 1 E 0	ESE 0 1 0 0 0 0 0 0 1 1 ESE 0	SE 0 0 0 0 0 0 0 0 0 0 0 5 5 5 5 0	SSE 0 1 0 0 0 0 0 1 5 SSE 0	S 0 0 1 1 3 S 0	SSW 0 2 0 2 11 1 0 16 SSW 0	SW 0 1 11 6 5 0 23 SW 0	WSW 0 1 8 9 0 0 0 18 8 8 8 9 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	W 0 2 10 6 0 0 18 W 0	WNW 0 0 3 4 0 0 7 7 WNW 0	NW 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	NNW 0 1 0 0 0 1 2 NNW 0	TOTAL 0 5 8 36 37 8 2 96 70TAL 0
Class G mph Calm-0.95 0.95-3.5 3.5-7.5 7.5-12.5 12.5-18.5 18.5-24 >24 TOTAL Class All mph Calm-0.95 0.95-3.5	Freq: N 0 1 1 0 0 1 0 3 Freq: N 6	0.017 NNE 0 1 0 1 0 1 0 0 2 1.000 NNE 0 4	- NE * 0 0 1 0 0 0 0 1 1 0 0 0 0	ENE 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	E 0 1 0 0 0 0 0 1 1 E 0 2	ESE 0 1 0 0 0 0 0 0 1 1 ESE 0 4	SE 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 10	SSE 0 1 0 0 0 0 0 1 5	S 0 0 1 1 1 1 3 S 0 14	SSW 0 2 11 1 0 16 SSW 0 7	SW 0 1 11 6 5 0 23 SW 0 6	WSW 0 1 8 9 0 0 18 WSW 0 2	W 0 2 10 6 0 0 18 W 0 6	WNW 0 0 3 4 0 0 7 7 WNW 0 1	NW 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	NNW 0 1 0 0 1 2 NNW 0 6	TOTAL 0 5 8 36 37 8 2 96 TOTAL 0 80
Class G mph Calm-0.95 0.95-3.5 3.5-7.5 7.5-12.5 12.5-18.5 18.5-24 >24 TOTAL Class All mph Calm-0.95 0.95-3.5 3.5-7.5	Freq: N 0 1 1 0 1 0 3 Freq: N 0 6 27	0.017 NNE 0 1 0 1 0 1 0 0 2 1.000 NNE 0 4 4	NE - NE NE NE NE	ENE 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	E 0 1 0 0 0 0 0 1 1 E 0 2 31	ESE 0 1 0 0 0 0 0 1 1 ESE 0 4 37	SE 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 10 30	SSE 0 0 1 0 0 0 0 1 1 SSE 0 5 36	S 0 0 1 1 1 1 3 S 0 14 32	SSW 0 2 11 1 0 16 SSW 0 7 33	SW 0 1 11 6 5 0 23 23 SW 0 6 9	WSW 0 1 8 9 0 0 0 18 WSW 0 2 22	W 0 2 10 6 0 0 18 W 0 6 27	WNW 0 0 3 4 0 0 7 7 WNW 0 1 1 18	NW 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	NNW 0 0 1 0 0 1 2 NNW 0 6 23	TOTAL 0 5 8 36 37 8 2 96 7 0 80 80 473
Class G mph Calm-0.95 0.95-3.5 3.5-7.5 7.5-12.5 12.5-18.5 18.5-24 >24 TOTAL Class All mph Calm-0.95 0.95-3.5 3.5-7.5 7.5-12.5	Freq: N 0 1 1 0 0 1 0 3 Freq: N 0 6 27 55	0.017 NNE 0 0 1 0 1 0 1 0 2 1.000 NNE 0 4 48 42	-NE ← 0 0 1 0 0 1 0 0 1 1 0 0 0 1 1 0 0 1 1 0 0 1 1 0 0 1 1 0 0 1 1 0 0 0 1 1 0 0 0 0 1 0	ENE 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	E 0 0 0 0 0 0 1 1 E 0 2 31 103	ESE 0 1 0 0 0 0 0 1 1 ESE 0 4 37 79	SE 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	SSE 0 0 1 0 0 0 0 0 1 1 SSE 0 5 36 69	S 0 0 1 1 0 1 1 3 S 0 14 32 92	SSW 0 2 11 1 0 16 SSW 0 7 33 93	SW 0 1 11 6 5 0 23 23 SW 0 6 9 9 78	WSW 0 1 8 9 0 0 0 18 8 9 0 0 2 22 79	W 0 2 10 6 0 0 18 W 0 6 27 91	WNW 0 0 3 4 0 0 7 7 WNW 0 1 18 73	NW 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	NNW 0 0 1 0 0 1 2 NNW 0 6 23 43	TOTAL 0 5 8 36 37 8 2 96 7 0 80 473 1145
Class G mph Calm-0.95 0.95-3.5 3.5-7.5 7.5-12.5 12.5-18.5 18.5-24 >24 TOTAL Class All Mph Calm-0.95 0.95-3.5 3.5-7.5 7.5-12.5 12.5-18.5	Freq: N 0 1 1 0 0 1 0 1 0 3 Freq: N 0 6 27 55 55	0.017 NNE 0 1 0 1 0 1 0 2 1.000 NNE 0 4 48 42 47	NE - 0 0 0 1 0 0 0 1 0 0 0 1 NE 0 0 43 51 36	ENE 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	E 0 1 0 0 0 0 0 0 1 1 2 31 103 51	ESE 0 1 0 0 0 0 0 0 0 1 5 5 5 7 9 47	SE 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	SSE 0 1 0 5 36 69 127	S 0 0 1 1 3 3 S 0 14 32 92 241	SSW 0 2 0 2 11 1 0 16 5 SSW 0 7 33 93 280	SW 0 1 11 6 5 0 23 23 SW 0 6 9 78 229	WSW 0 1 8 9 0 0 0 18 8 8 9 0 0 2 2 22 79 227	W 0 2 10 6 0 0 18 8 W 0 6 27 91 207	WNW 0 0 3 4 0 0 7 7 WNW 0 1 1 8 73 166	NW 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	NNW 0 1 0 0 1 2 NNW 0 6 23 43 75	TOTAL 0 5 8 36 37 8 2 96 7 7 8 96 7 7 8 96 7 7 8 96 7 7 8 96 7 7 8 96 7 7 8 96 7 7 8 96 7 7 8 96 7 7 8 96 7 7 8 96 96 7 96 96 96 96 96 96 96 96 96 96 96 96 96
Class G mph Calm-0.95 0.95-3.5 3.5-7.5 7.5-12.5 12.5-18.5 18.5-24 >24 TOTAL Class All mph Calm-0.95 0.95-3.5 3.5-7.5 7.5-12.5 12.5-18.5 18.5-24	Freq: N 0 1 1 0 0 1 0 3 7 55 55 26	0.017 NNE ⁻ 0 1 0 1 0 1 0 2 1.000 NNE 0 4 48 42 47 20	NE - NE NE NE NE NE	ENE 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	E 0 1 0 0 0 0 0 0 1 2 31 103 51 27	ESE 0 1 0 0 0 0 0 0 0 1 5 5 5 7 9 47 79 47 14	SE 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	SSE 0 1 0 0 0 0 0 0 0 1 1 5 36 69 127 42	S 0 0 1 0 1 1 1 3 S 0 14 32 92 241 199	SSW 0 2 11 1 0 16 SSW 0 7 33 93 280 216	SW 0 1 11 6 5 0 23 23 SW 0 6 9 78 229 137	WSW 0 1 8 9 0 0 0 18 8 8 9 0 0 18 79 227 79 227 111	W 0 2 10 6 0 0 18 W 0 6 27 91 207 100	WNW 0 0 3 4 0 0 7 7 WNW 0 1 18 73 166 65	NW 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	NNW 0 1 0 0 1 2 NNW 0 6 23 43 75 58	TOTAL 0 5 8 36 37 8 2 96 7 7 8 2 96 7 7 8 96 7 7 8 96 7 7 8 96 7 7 8 96 7 7 8 96 7 7 8 96 7 7 8 96 7 1145 1981 1148
Class G mph Calm-0.95 0.95-3.5 3.5-7.5 7.5-12.5 12.5-18.5 18.5-24 >24 TOTAL Class All mph Calm-0.95 0.95-3.5 3.5-7.5 7.5-12.5 12.5-18.5 18.5-24 >24	Freq: N 0 1 0 1 0 1 0 1 0 3 Freq: N 0 6 27 55 26 54	0.017 NNE 0 1 0 1 0 1 0 2 1.000 NNE 0 4 48 42 47 20 25	NE - 0 0 0 1 0 0 0 1 0 0 0 1 1 0 0 0 1 1 0 0 0 1	ENE 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	E 0 1 0 0 0 0 0 0 1 1 2 31 103 51 27 20	ESE 0 0 0 0 0 0 0 0 1 1 ESE 0 4 37 79 47 14 14	SE 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	SSE 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 SSE 0 5 36 69 127 42 6	S 0 0 1 1 1 1 3 S 0 14 32 92 241 199 111	SSW 0 2 11 1 0 16 SSW 0 7 33 93 280 216 64	SW 0 1 11 6 5 0 23 23 SW 0 6 9 78 229 137 11	WSW 0 1 8 9 0 0 0 18 0 18 0 2 22 79 227 1111 53	W 0 2 10 6 0 0 18 8 W 0 6 27 91 207 100 66	WNW 0 0 3 4 0 0 7 7 WNW 0 1 1 8 73 166 65 66	NW 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	NNW 0 0 1 0 0 1 2 NNW 0 6 23 43 75 58 59	TOTAL 0 5 8 36 37 8 2 96 7 7 8 2 96 7 7 8 96 7 7 8 0 80 473 1145 1981 1148 680
APPENDIX C

PILGRIM NUCLEAR POWER STATION OFFSITE DOSE CALCULATION MANUAL

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The PNPS Offsite Dose Calculation Manual (ODCM) was not revised during calendar year 2002.