Entergy

**Entergy Nuclear Operations, Inc.**
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May 9, 2007

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
License No. DPR-35

Radioactive Effluent Release Report
for January 1 through December 31, 2006

LETTER NUMBER: 2.07.046

Dear Sir or Madam:

In accordance with Pilgrim Technical Specifications 5.6.3, Entergy Nuclear Operations, Inc. submits the attached Annual Radiological Effluent Release Report for January 1 through December 31, 2006.

Should you have questions or require additional information, I can be contacted at (508) 830-8403.

This letter contains no commitments.

Sincerely,

Bryan Ford

WGL/dl
Attachment: Pilgrim Nuclear Power Station Radiological Effluent Release Report, January 1 through December 31, 2006

cc: U.S. Nuclear Regulatory Commission
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# PILGRIM NUCLEAR POWER STATION

## Facility Operating License DPR-35

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## Radioactive Effluent Release Report

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## January 1 through December 31, 2006

# PILGRIM NUCLEAR POWER STATION
## Facility Operating License DPR-35

## RADIOACTIVE EFFLUENT RELEASE REPORT

## JANUARY 01 THROUGH DECEMBER 31, 2006

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Pilgrim Nuclear Power Station
Radioactive Effluent Release Report
January-December 2006

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## EXECUTIVE SUMMARY

PILGRIM NUCLEAR POWER STATION
RADIOACTIVE EFFLUENT RELEASE REPORT
JANUARY 01 THROUGH DECEMBER 31, 2006

## 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, 2006. 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 304 Curies. Releases of radioactive iodines and particulates with half-life of greater than 8 days totaled 0.003 Curies, and tritium releases totaled 72.1 Curies. No gross alpha radioactivity was detected in gaseous effluents.

Noble gases released in gaseous effluents resulted in a maximum total body dose of 0.44 mrem, with a corresponding skin dose of 5.1 mrem. The release of radioactivity in gaseous effluents from PNPS during 2006 resulted in a total body dose to the maximum-exposed hypothetical individual of about 0.46 mrem from radioactive particulates, iodines, and tritium. The maximum hypothetical dose to any organ from radioactive particulates, iodines, and tritium was about 0.81 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 0.90 mrem.

The maximum individual doses from gaseous radioactive effluents were compared to the applicable ODCM dose limits. Noble gas doses were less than 26% of the corresponding 10CFR50 dose objectives. Maximum doses resulting from releases of particulates, iodines, and tritium in gaseous effluents were less than 5.4% of corresponding 10CFR50 objectives.

## LIQUID EFFLUENTS

Liquid radioactive releases for the reporting period are quantified in Tables 2.3-A and 2.3-B. A single discharge of liquid effluents containing radioactivity occurred during calendar year 2006. The resulting maximum total body dose was 0.00000074 mrem, with a corresponding organ dose from this discharge was 0.0000011 mrem. All doses from liquid discharges were less than 0.00006% of corresponding 10CFR50 objectives.

## METEOROLOGICAL DATA

Meteorological joint frequency distributions are listed in Appendix A. During the first four months of 2006, problems were encountered with a meteorological signal cable from the upper level of the tower. Data recovery for the entire annual period was about 98% for the 33-ft level, and 84% 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 41% 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 even though they are within the owner-controlled area, was estimated as being about 12 mrem during 2006. There was no measurable increase during 2006 in ambient radiation measurements at the location of the nearest resident to PNPS.

## COMBINED DOSE IMPACT

The collective total body dose to a maximum-exposed hypothetical member of the public from radioactive gases, liquids, and ambient radiation exposure resulting from PNPS operation during 2006 was calculated as being 3.5 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 hypothetical 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 real members of the general public, so the fact that the dose to the hypothetical 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 wastes shipped offsite for processing and disposal during the reporting period are described in Table 7.0. Approximately 339 cubic meters of solid waste, containing 14,800 Curies of radioactivity, were shipped during the reporting period.

## REVISED GASEOUS EFFLUENTS REPORTS

During a Quality Assurance assessment in 2005, it was identified that a limited number of gamma spectroscopy results had not been included in calculation of weekly gaseous effluent estimates between 2002 and 2005. These results had initially been omitted because the activity levels were well below required detection sensitivities, and the very low count rates resulted in poorly shaped peaks used to identify and quantify the radionuclides. Because of the poor shape, the very low level activities detected were screened out from the report. Following a reassessment of the data, it was determined that these occurrences of low-level activity that had originally been omitted would be included. Data for the period 2002 through 2005 affected by the screening criteria were recalculated, and gaseous effluent reports for these periods were revised. Collectively over the four year period affected, releases of noble gases increased by 2.9%, releases of radioactive iodines and particulates each increased by 22%, and tritium release were unaffected. The update gaseous effluent tables for these years can be found in Appendices C through F.

## 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 2006, 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: 304 Ci, 9.64 μCi/sec
- Iodines and particulates with half-life greater than 8 days: 0.00303 Ci, 0.000096 μCi/sec
- Tritium: 72.1 Ci, 2.29 μCi/sec

Effluent releases from the main stack are detailed in Table 2.2-B. The main stack is 335 feet tall, and represents an elevated release point with a total 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, all of these release points are considered to be mixed-mode/ground level release points.

During a Quality Assurance assessment in 2005, it was identified that a limited number of gamma spectroscopy results had not been included in calculation of weekly gaseous effluent estimates between 2002 and 2005. These results had initially been omitted because the activity levels were well below required detection sensitivities, and the very low count rates resulted in poorly shaped peaks used to identify and quantify the radionuclides. Because of the poor shape, the very low level activities detected were screened out from the report. In all of these cases, the activity levels for the noble gas results were in the range of 9E-9 uCi/cc to 7E-8 uCi/cc. By comparison, the required lower limit of detection (LLD) for noble gases in the Offsite Dose Calculation Manual is 1E-4 uCi/cc. The activity levels that had been omitted represented values less than 0.1% of the minimum detection sensitivity required by the ODCM. A similar comparison for radioactive iodines were associated with activity levels in the range of 2E-13 uCi/cc to 1E-12 uCi/cc, compared to a required LLD of 1E-12 uCi/cc. For radioactive particulates, the activity values originally omitted ranged from 3E-13 uCi/cc to 4E-12 uCi/cc, compared to a required LLD of 1E-11 uCi/cc.

Following a reassessment of the data, it was determined that these occurrences of low-level activity that had originally been omitted from the weekly effluent estimates would be included. Data for the period 2002 through 2005 affected by the screening criteria were recalculated, and gaseous effluent reports for these periods were revised. Collectively over the four year period affected, releases of noble gases increased by 2.9%, releases of radioactive iodines and particulates each increased by 22%, and tritium release were unaffected. The update gaseous effluent tables for these years can be found in Appendices C through F.

## 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.

Liquid effluent releases are summarized in Table 2.3-A. Detailed breakdowns for individual radionuclides are listed in Table 2.3-B. There was only one discharge of liquid effluents containing radioactivity during the calendar year of 2006. Total releases for the various categories of radionuclides, as well as their corresponding mean concentrations, can be summarized as follows:

- Total Effluent Volume: 36,000 Liters
- Total Dilution Volume: 593,000,000,000 Liters
- Fission/Activation products: 0.0000176 Ci, 0.0000000000000297 μCi/mL
- Tritium: 0.141 Ci, 0.000000000238 μCi/mL
- Dissolved/entrained noble gases: 0 Ci, 0 μCi/mL

Table 2.1
Pilgrim Nuclear Power Station
Radioactive Effluent Release Report
Supplemental Information
January-December 2006

**FACILITY: PILGRIM NUCLEAR POWER STATION** **LICENSE: DPR-35**

| | |
|---|---|
| **1. REGULATORY LIMITS** | |
| a. Fission and activation gases: | 500 mrem/yr total body and 3000 mrem/yr for skin at site boundary |
| b,c. Iodines, particulates with half-life: >8 days, tritium | 1500 mrem/yr to any organ at site boundary |
| d. Liquid effluents: | 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: | 10CFR20 Appendix B Table II |
| b. Iodines: | 10CFR20 Appendix B Table II |
| c. Particulates with half-life > 8 days: | 10CFR20 Appendix B Table II |
| d. Liquid effluents: | 2E-04 µCi/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:<br>b. Iodines:<br>c. Particulates:<br>d. Liquid effluents: | High purity germanium gamma spectroscopy for all gamma emitters; radiochemistry analysis for H-3, Fe-55 (liquid effluents), Sr-89, and Sr-90 |

| **5. BATCH RELEASES** | Jan-Mar 2006 | Apr-Jun 2006 | Jul-Sep 2006 | Oct-Dec 2006 | Jan-Dec 2006 |
|---|---|---|---|---|---|
| a. Liquid Effluents | | | | | |
| 1. Total number of releases: | 1 | 0 | 0 | 0 | 1 |
| 2. Total time period (minutes): | 1.81E+02 | 0 | 0 | 0 | 1.81E+02 |
| 3. Maximum time period (minutes): | 1.81E+02 | 0 | 0 | 0 | 1.81E+02 |
| 4. Average time period (minutes): | 1.81E+02 | 0 | 0 | 0 | 1.81E+02 |
| 5. Minimum time period (minutes): | 1.81E+02 | 0 | 0 | 0 | 1.81E+02 |
| 6. Average stream flow during periods of release of effluents into a flowing stream (Liters/min): | 1.17E+06 | 0 | 0 | 0 | 1.13E+06 |
| b. Gaseous Effluents | None | None | None | None | None |
| **6. ABNORMAL RELEASES** | | | | | |
| a. Liquid Effluents | None | None | None | None | None |
| b. Gaseous Effluents | None | None | None | None | None |

Table 2.2-A
Pilgrim Nuclear Power Station
Radioactive Effluent Release Report
Gaseous Effluents - Summation of All Releases
January-December 2006

| RELEASE PERIOD | Jan-Mar 2006 | Apr-Jun 2006 | Jul-Sep 2006 | Oct-Dec 2006 | Jan-Dec 2006 | Est. Total Error |
|---|---|---|---|---|---|---|
| **A. FISSION AND ACTIVATION GASES** | | | | | | |
| Total Release: Ci | 7.43E+01 | 4.92E+01 | 8.08E+01 | 9.98E+01 | 3.04E+02 | ±22% |
| Average Release Rate: µCi/sec | 9.43E+00 | 6.24E+00 | 1.02E+01 | 1.27E+01 | 9.64E+00 | |
| Percent of Effluent Control Limit* | * | * | * | * | * | |
| **B. IODINE-131** | | | | | | |
| Total Iodine-131 Release: Ci | 4.48E-04 | 2.40E-04 | 3.15E-04 | 5.94E-04 | 1.60E-03 | ±20% |
| Average Release Rate: µCi/sec | 5.68E-05 | 3.05E-05 | 3.99E-05 | 7.53E-05 | 5.06E-05 | |
| Percent of Effluent Control Limit* | * | * | * | * | * | |
| **C. PARTICULATES WITH HALF-LIVES > 8 DAYS** | | | | | | |
| Total Release: Ci | 4.80E-04 | 2.91E-04 | 3.68E-04 | 3.04E-04 | 1.44E-03 | ±21% |
| Average Release Rate: µCi/sec | 6.08E-05 | 3.69E-05 | 4.67E-05 | 3.86E-05 | 4.57E-05 | |
| Percent of Effluent Control Limit* | * | * | * | * | * | |
| Gross Alpha Radioactivity: Ci | NDA | NDA | NDA | NDA | NDA | |
| **D. TRITIUM** | | | | | | |
| Total Release: Ci | 2.06E+01 | 1.74E+01 | 1.81E+01 | 1.60E+01 | 7.21E+01 | ±20% |
| Average Release Rate: µCi/sec | 2.62E+00 | 2.21E+00 | 2.30E+00 | 2.02E+00 | 2.29E+00 | |
| 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 µCi/cc.

Table 2.2-B
Pilgrim Nuclear Power Station
Radioactive Effluent Release Report
Gaseous Effluents – Elevated Release
January-December 2006

| CONTINUOUS MODE RELEASES FROM ELEVATED RELEASE POINT | | | | | |
|---|---|---|---|---|---|
| Nuclide Released | Jan-Mar 2006 | Apr-Jun 2006 | Jul-Sep 2006 | Oct-Dec 2006 | Jan-Dec 2006 |
| **1. FISSION AND ACTIVATION GASES: Ci** | | | | | |
| Ar-41 | 7.17E-01 | 2.25E-01 | 5.90E-01 | 3.56E-01 | 1.89E+00 |
| Kr-85 | 1.35E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.35E+00 |
| Kr-85m | 3.82E+00 | 3.75E+00 | 8.40E+00 | 9.98E+00 | 2.59E+01 |
| Kr-87 | 1.03E+00 | 0.00E+00 | 0.00E+00 | 1.84E-01 | 1.21E+00 |
| Kr-88 | 8.28E-01 | 3.48E+00 | 7.92E+00 | 8.66E+00 | 2.09E+01 |
| Xe-131m | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Xe-133 | 2.83E+01 | 1.65E+01 | 3.21E+01 | 3.59E+01 | 1.13E+02 |
| Xe-133m | 1.82E-01 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.82E-01 |
| Xe-135 | 3.83E+00 | 8.88E-02 | 4.30E-01 | 5.48E-01 | 4.90E+00 |
| Xe-135m | 1.12E+00 | 1.07E-01 | 4.21E-01 | 0.00E+00 | 1.65E+00 |
| Xe-137 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Xe-138 | 3.42E+00 | 2.04E+00 | 2.53E+00 | 3.68E+00 | 1.17E+01 |
| | | | | | |
| Total for Period | 4.45E+01 | 2.62E+01 | 5.24E+01 | 5.93E+01 | 1.82E+02 |
| **2. IODINES: Ci** | | | | | |
| I-131 | 1.82E-04 | 3.87E-05 | 8.07E-05 | 1.93E-04 | 4.95E-04 |
| I-133 | 8.71E-04 | 2.71E-04 | 6.80E-04 | 7.12E-04 | 2.53E-03 |
| | | | | | |
| Total for Period | 1.05E-03 | 3.10E-04 | 7.61E-04 | 9.05E-04 | 3.03E-03 |
| **3. PARTICULATES WITH HALF-LIVES > 8 DAYS: Ci** | | | | | |
| Mn-54 | 6.88E-07 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 6.88E-07 |
| Co-60 | 1.48E-06 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.48E-06 |
| Sr-89 | 6.81E-05 | 6.95E-06 | 6.49E-06 | 9.11E-06 | 9.06E-05 |
| Sr-90 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Ru-103 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Cs-137 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Ba/La-140 | 0.00E+00 | 2.32E-06 | 5.18E-05 | 6.23E-05 | 1.16E-04 |
| | | | | | |
| Total for Period | 7.02E-05 | 9.27E-06 | 5.83E-05 | 7.14E-05 | 2.09E-04 |
| **4. TRITIUM: Ci** | | | | | |
| H-3 | 2.66E-01 | 2.09E-01 | 7.31E-01 | 6.18E-01 | 1.82E+00 |

Notes for Table 2.2-B:

1. N/A stands for not applicable.
2. NDA stands for No Detectable Activity.
3. LLDs for airborne radionuclides listed as NDA are as follows:
   Fission Gases: 1E-04 µCi/cc
   Iodines: 1E-12 µCi/cc
   Particulates: 1E-11 µCi/cc

Table 2.2-B (continued)
Pilgrim Nuclear Power Station
Radioactive Effluent Release Report
Gaseous Effluents – Elevated Release
January-December 2006

| BATCH MODE RELEASES FROM ELEVATED RELEASE POINT | | | | | |
|---|---|---|---|---|---|
| Nuclide Released | Jan-Mar 2006 | Apr-Jun 2006 | Jul-Sep 2006 | Oct-Dec 2006 | Jan-Dec 2006 |
| **1. FISSION AND ACTIVATION GASES: Ci** | | | | | |
| Ar-41 | N/A | N/A | N/A | N/A | N/A |
| Kr-85 | N/A | N/A | N/A | N/A | N/A |
| Kr-85m | N/A | N/A | N/A | N/A | N/A |
| Kr-87 | N/A | N/A | N/A | N/A | N/A |
| Kr-88 | N/A | N/A | N/A | N/A | N/A |
| Xe-131m | N/A | N/A | N/A | N/A | N/A |
| Xe-133 | N/A | N/A | N/A | N/A | N/A |
| Xe-133m | N/A | N/A | N/A | N/A | N/A |
| Xe-135 | N/A | N/A | N/A | N/A | N/A |
| Xe-135m | N/A | N/A | N/A | N/A | N/A |
| Xe-137 | N/A | N/A | N/A | N/A | N/A |
| Xe-138 | N/A | N/A | N/A | N/A | N/A |
| | | | | | |
| Total for period | N/A | N/A | N/A | N/A | N/A |
| **2. IODINES: Ci** | | | | | |
| I-131 | N/A | N/A | N/A | N/A | N/A |
| I-133 | N/A | N/A | N/A | N/A | N/A |
| | | | | | |
| Total for period | N/A | N/A | N/A | N/A | N/A |
| **3. PARTICULATES WITH HALF-LIVES > 8 DAYS: Ci** | | | | | |
| Mn-54 | N/A | N/A | N/A | N/A | N/A |
| Co-60 | N/A | N/A | N/A | N/A | N/A |
| Sr-89 | N/A | N/A | N/A | N/A | N/A |
| Sr-90 | N/A | N/A | N/A | N/A | N/A |
| Ru-103 | N/A | N/A | N/A | N/A | N/A |
| Cs-137 | N/A | N/A | N/A | N/A | N/A |
| Ba/La-140 | N/A | N/A | N/A | N/A | N/A |
| | | | | | |
| Total for period | N/A | N/A | N/A | N/A | N/A |
| **4. TRITIUM: Ci** | | | | | |
| H-3 | N/A | N/A | N/A | N/A | N/A |

Notes for Table 2.2-B:

1. N/A stands for not applicable.
2. NDA stands for No Detectable Activity.
3. LLDs for airborne radionuclides listed as NDA are as follows:
   Fission Gases: 1E-04 µCi/cc
   Iodines: 1E-12 µCi/cc
   Particulates: 1E-11 µCi/cc

Table 2.2-C
Pilgrim Nuclear Power Station
Radioactive Effluent Release Report
Gaseous Effluents – Ground-Level Release
January-December 2006

| CONTINUOUS MODE RELEASES FROM GROUND-LEVEL RELEASE POINT | | | | | |
|---|---|---|---|---|---|
| Nuclide Released | Jan-Mar 2006 | Apr-Jun 2006 | Jul-Sep 2006 | Oct-Dec 2006 | Jan-Dec 2006 |
| **1. FISSION AND ACTIVATION GASES: Ci** | | | | | |
| Ar-41 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Kr-85 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Kr-85m | 2.34E-01 | 0.00E+00 | 4.28E-01 | 0.00E+00 | 6.62E-01 |
| Kr-87 | 9.18E-01 | 0.00E+00 | 5.36E-01 | 1.01E+00 | 2.46E+00 |
| Kr-88 | 0.00E+00 | 1.45E+00 | 3.02E+00 | 0.00E+00 | 4.47E+00 |
| Xe-131m | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Xe-133 | 0.00E+00 | 0.00E+00 | 7.64E-01 | 2.50E+00 | 3.26E+00 |
| Xe-133m | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Xe-135 | 3.24E+00 | 4.46E+00 | 6.76E+00 | 9.58E+00 | 2.40E+01 |
| Xe-135m | 1.82E+00 | 0.00E+00 | 2.48E+00 | 2.35E+00 | 6.64E+00 |
| Xe-137 | 1.24E+01 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.24E+01 |
| Xe-138 | 1.12E+01 | 1.71E+01 | 1.44E+01 | 2.51E+01 | 6.78E+01 |
| | | | | | |
| Total for period | 2.98E+01 | 2.30E+01 | 2.84E+01 | 4.06E+01 | 1.22E+02 |
| **2. IODINES: Ci** | | | | | |
| I-131 | 2.66E-04 | 2.02E-04 | 2.34E-04 | 4.01E-04 | 1.10E-03 |
| I-133 | 1.86E-03 | 1.74E-03 | 2.27E-03 | 1.72E-03 | 7.58E-03 |
| | | | | | |
| Total for period | 2.12E-03 | 1.94E-03 | 2.50E-03 | 2.12E-03 | 8.68E-03 |
| **3. PARTICULATES WITH HALF-LIVES > 8 DAYS: Ci** | | | | | |
| Mn-54 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Co-60 | 1.14E-07 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.14E-07 |
| Sr-89 | 2.50E-04 | 8.83E-05 | 9.76E-05 | 1.18E-04 | 5.54E-04 |
| Sr-90 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Ru-103 | 0.00E+00 | 7.43E-07 | 0.00E+00 | 0.00E+00 | 7.43E-07 |
| Cs-137 | 6.35E-06 | 6.51E-07 | 0.00E+00 | 0.00E+00 | 7.00E-06 |
| Ba/La-140 | 1.53E-04 | 1.92E-04 | 2.12E-04 | 1.14E-04 | 6.71E-04 |
| | | | | | |
| Total for period | 4.09E-04 | 2.82E-04 | 3.10E-04 | 2.33E-04 | 1.23E-03 |
| **4. TRITIUM: Ci** | | | | | |
| H-3 | 2.04E+01 | 1.72E+01 | 1.74E+01 | 1.53E+01 | 7.03E+01 |

Notes for Table 2.2-C:

1. N/A stands for not applicable.
2. NDA stands for No Detectable Activity.
3. LLDs for airborne radionuclides listed as NDA are as follows:
   Fission Gases: 1E-04 µCi/cc
   Iodines: 1E-12 µCi/cc
   Particulates: 1E-11 µCi/cc

Table 2.2-C (continued)
Pilgrim Nuclear Power Station
Radioactive Effluent Release Report
Gaseous Effluents – Ground-Level Release
January-December 2006

| BATCH MODE RELEASES FROM GROUND-LEVEL RELEASE POINT | | | | | |
|---|---|---|---|---|---|
| Nuclide Released | Jan-Mar 2006 | Apr-Jun 2006 | Jul-Sep 2006 | Oct-Dec 2006 | Jan-Dec 2006 |
| **1. FISSION AND ACTIVATION GASES: Ci** | | | | | |
| Ar-41 | N/A | N/A | N/A | N/A | N/A |
| Kr-85 | N/A | N/A | N/A | N/A | N/A |
| Kr-85m | N/A | N/A | N/A | N/A | N/A |
| Kr-87 | N/A | N/A | N/A | N/A | N/A |
| Kr-88 | N/A | N/A | N/A | N/A | N/A |
| Xe-131m | N/A | N/A | N/A | N/A | N/A |
| Xe-133 | N/A | N/A | N/A | N/A | N/A |
| Xe-133m | N/A | N/A | N/A | N/A | N/A |
| Xe-135 | N/A | N/A | N/A | N/A | N/A |
| Xe-135m | N/A | N/A | N/A | N/A | N/A |
| Xe-137 | N/A | N/A | N/A | N/A | N/A |
| Xe-138 | N/A | N/A | N/A | N/A | N/A |
| | | | | | |
| Total for period | N/A | N/A | N/A | N/A | N/A |
| **2. IODINES: Ci** | | | | | |
| I-131 | N/A | N/A | N/A | N/A | N/A |
| I-133 | N/A | N/A | N/A | N/A | N/A |
| | | | | | |
| Total for period | N/A | N/A | N/A | N/A | N/A |
| **3. PARTICULATES WITH HALF-LIVES > 8 DAYS: Ci** | | | | | |
| Mn-54 | N/A | N/A | N/A | N/A | N/A |
| Co-60 | N/A | N/A | N/A | N/A | N/A |
| Sr-89 | N/A | N/A | N/A | N/A | N/A |
| Sr-90 | N/A | N/A | N/A | N/A | N/A |
| Ru-103 | N/A | N/A | N/A | N/A | N/A |
| Cs-137 | N/A | N/A | N/A | N/A | N/A |
| Ba/La-140 | N/A | N/A | N/A | N/A | N/A |
| | | | | | |
| Total for period | N/A | N/A | N/A | N/A | N/A |
| **4. TRITIUM: Ci** | | | | | |
| H-3 | N/A | N/A | N/A | N/A | N/A |

Notes for Table 2.2-C:

1. N/A stands for not applicable.
2. NDA stands for No Detectable Activity.
3. LLDs for airborne radionuclides listed as NDA are as follows:
   Fission Gases: 1E-04 µCi/cc
   Iodines: 1E-12 µCi/cc
   Particulates: 1E-11 µCi/cc

Table 2.3-A
Pilgrim Nuclear Power Station
Radioactive Effluent Release Report
Liquid Effluents - Summation of All Releases
January-December 2006

| RELEASE PERIOD | Jan-Mar 2006 | Apr-Jun 2006 | Jul-Sep 2006 | Oct-Dec 2006 | Jan-Dec 2006 | Est. Total Error |
|---|---|---|---|---|---|---|
| **A. FISSION AND ACTIVATION PRODUCTS** | | | | | | |
| Total Release (not including tritium, gases, alpha): Ci | 1.76E-05 | N/A | N/A | N/A | 1.76E-05 | ±12% |
| Average Diluted Concentration During Period: µCi/mL | 1.22E-13 | N/A | N/A | N/A | 2.97E-14 | |
| Percent of Effluent Concentration Limit* | 1.09E-05% | N/A | N/A | N/A | 2.66E-06% | |
| **B. TRITIUM** | | | | | | |
| Total Release: Ci | 1.41E-01 | N/A | N/A | N/A | 1.41E-01 | ±9.4% |
| Average Diluted Concentration During Period: µCi/mL | 9.75E-10 | N/A | N/A | N/A | 2.38E-10 | |
| Percent of Effluent Concentration Limit* | 9.75E-05% | N/A | N/A | N/A | 2.38E-05% | |
| **C. DISSOLVED AND ENTRAINED GASES** | | | | | | |
| Total Release: Ci | N/A | N/A | N/A | N/A | N/A | ±16% |
| Average Diluted Concentration During Period: µCi/mL | N/A | N/A | N/A | N/A | N/A | |
| Percent of Effluent Concentration Limit* | N/A | N/A | N/A | N/A | N/A | |
| **D. GROSS ALPHA RADIOACTIVITY** | | | | | | |
| Total Release: Ci | N/A | N/A | N/A | N/A | N/A | ±34% |
| **E. VOLUME OF WASTE RELEASED PRIOR TO DILUTION** | | | | | | |
| Waste Volume: Liters | 3.60E+04 | N/A | N/A | N/A | 3.60E+04 | ±5.7% |
| **F. VOLUME OF DILUTION WATER USED DURING PERIOD** | | | | | | |
| Dilution Volume: Liters | 1.45E+11 | 1.49E+11 | 1.50E+11 | 1.50E+11 | 5.93E+11 | ±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
Radioactive Effluent Release Report
Liquid Effluents
January-December 2006

| CONTINUOUS MODE RELEASES | | | | | |
|---|---|---|---|---|---|
| Nuclide Released | Jan-Mar 2006 | Apr-Jun 2006 | Jul-Sep 2006 | Oct-Dec 2006 | Jan-Dec 2006 |
| **1. FISSION AND ACTIVATION PRODUCTS: Ci** | | | | | |
| Cr-51 | N/A | N/A | N/A | N/A | N/A |
| Mn-54 | N/A | N/A | N/A | N/A | N/A |
| Fe-55 | N/A | N/A | N/A | N/A | N/A |
| Fe-59 | N/A | N/A | N/A | N/A | N/A |
| Co-58 | N/A | N/A | N/A | N/A | N/A |
| Co-60 | 2.72E-06 | N/A | N/A | N/A | 2.72E-06 |
| Zn-65 | N/A | N/A | N/A | N/A | N/A |
| Zn-69m | N/A | N/A | N/A | N/A | N/A |
| Sr-89 | N/A | N/A | N/A | N/A | N/A |
| Sr-90 | N/A | N/A | N/A | N/A | N/A |
| Zr/Nb-95 | N/A | N/A | N/A | N/A | N/A |
| Mo/Tc-99 | N/A | N/A | N/A | N/A | N/A |
| Ag-110m | N/A | N/A | N/A | N/A | N/A |
| Sb-124 | N/A | N/A | N/A | N/A | N/A |
| I-131 | N/A | N/A | N/A | N/A | N/A |
| I-133 | N/A | N/A | N/A | N/A | N/A |
| Cs-134 | N/A | N/A | N/A | N/A | N/A |
| Cs-137 | 1.49E-05 | N/A | N/A | N/A | 1.49E-05 |
| Ba/La-140 | N/A | N/A | N/A | N/A | N/A |
| Ce-141 | N/A | N/A | N/A | N/A | N/A |
| | | | | | |
| Total for period | 1.76E-05 | N/A | N/A | N/A | 1.76E-05 |
| **2. DISSOLVED AND ENTRAINED GASES: Ci** | | | | | |
| Xe-133 | N/A | N/A | N/A | N/A | N/A |
| Xe-135 | N/A | N/A | N/A | N/A | N/A |
| | | | | | |
| Total for period | N/A | N/A | N/A | N/A | N/A |

Notes for Table 2.3-B:

1. N/A stands for not applicable.
2. NDA stands for No Detectable Activity.
3. LLDs for liquid radionuclides listed as NDA are as follows:
   - Strontium: 5E-08 µCi/mL
   - Iodines: 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
Radioactive Effluent Release Report
Liquid Effluents
January-December 2006

| BATCH MODE RELEASES | | | | | |
|---|---|---|---|---|---|
| Nuclide Released | Jan-Mar 2006 | Apr-Jun 2006 | Jul-Sep 2006 | Oct-Dec 2006 | Jan-Dec 2006 |
| **1. FISSION AND ACTIVATION PRODUCTS: Ci** | | | | | |
| Cr-51 | NDA | N/A | N/A | N/A | NDA |
| Mn-54 | NDA | N/A | N/A | N/A | NDA |
| Fe-55 | NDA | N/A | N/A | N/A | NDA |
| Fe-59 | NDA | N/A | N/A | N/A | NDA |
| Co-58 | NDA | N/A | N/A | N/A | NDA |
| Co-60 | NDA | N/A | N/A | N/A | NDA |
| Zn-65 | NDA | N/A | N/A | N/A | NDA |
| Zn-69m | NDA | N/A | N/A | N/A | NDA |
| Sr-89 | NDA | N/A | N/A | N/A | NDA |
| Sr-90 | NDA | N/A | N/A | N/A | NDA |
| Zr/Nb-95 | NDA | N/A | N/A | N/A | NDA |
| Mo/Tc-99 | NDA | N/A | N/A | N/A | NDA |
| Ag-110m | NDA | N/A | N/A | N/A | NDA |
| Sb-124 | NDA | N/A | N/A | N/A | NDA |
| I-131 | NDA | N/A | N/A | N/A | NDA |
| I-133 | NDA | N/A | N/A | N/A | NDA |
| Cs-134 | NDA | N/A | N/A | N/A | NDA |
| Cs-137 | NDA | N/A | N/A | N/A | NDA |
| Ba/La-140 | NDA | N/A | N/A | N/A | NDA |
| Ce-141 | NDA | N/A | N/A | N/A | NDA |
| | | | | | |
| Total for period | NDA | N/A | N/A | N/A | NDA |
| **2. DISSOLVED AND ENTRAINED GASES: Ci** | | | | | |
| Xe-133 | NDA | N/A | N/A | N/A | NDA |
| Xe-135 | NDA | N/A | N/A | N/A | NDA |
| | | | | | |
| Total for period | NDA | N/A | N/A | N/A | NDA |

Notes for Table 2.3-B:

1. N/A stands for not applicable.
2. NDA stands for No Detectable Activity.
3. LLDs for liquid radionuclides listed as NDA are as follows:
   - Strontium: 5E-08 µCi/mL
   - Iodines: 1E-06 µCi/mL
   - Noble Gases: 1E-05 µCi/mL
   - All Others: 5E-07 µCi/mL

## 3.0 METEOROLOGICAL DATA

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, 41%
- 33-ft Wind Direction (from): South-southwest, 16%
- 33-ft Wind Speed: 3.5-7.5 mph, 58%
- 220-ft Wind Direction (from): South-southwest, 14%
- 220-ft Wind Speed: 12.5-18.5 mph, 38%

There were a number of instances when data collection from the 220-ft meteorological tower was not continuous. In October 2005, Pilgrim Station upgraded the meteorological sensors on the 220-ft primary tower. During the first few months following installation, it was identified that a faulty electrical connector was causing intermittent loss of signal from the upper-level wind sensors. This resulted in substantial data loss from the upper level during the first four months of 2006. The faulty cable was replaced in late April 2006, and data recovery from that point forward was approximately 100%. However, due to the connector problem (which only affected the upper level), data recovery for the entire annual period was about 84% for the 220-ft level, while data recovery at the 33-ft lower level was about 98%. Although the lower level data recovery value of 98% met the NRC's recommended annual recovery goal of 90%, the data recovery of 84% for the upper level failed to meet the data recovery goal. 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. Once the faulty cable was replaced, the new sensors and cable were providing 100% joint data recovery during the remainder of the year, and no major problems have been encountered since.

## 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. Maximum 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 the 10-year period from 1994 through 2003 were used as input to the "AEOLUS-3" computer program (Reference 6). 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 2006 resulted in a maximum total body dose of 0.44 mrem. The maximum skin dose was 5.1 mrem. Both of these doses occurred to a hypothetical individual, located at the shoreline approximately 0.10 kilometers NNE of the PNPS Reactor Building. These areas are under control of Entergy Nuclear. For the more "realistic" individuals at offsite locations, the maximum total body dose was 0.024 mrem (nearest residence, 0.80 kilometers ESE from the Reactor Building), while the maximum skin dose was 0.082 mrem (nearest residence, 0.80 kilometers ESE from the Reactor Building).

Table 4.1

Maximum Doses From Noble Gas Releases During 2006[a]

| Release Period | Gamma Air Dose (location) | Beta Air Dose (location) | Total Body Dose (location) | Skin Dose (location) |
|---|---|---|---|---|
| Jan-Mar | 1.16E-01 (0.10 km NNE) | 2.04E+00 (0.10 km NNE) | 7.73E-02 (0.10 km NNE) | 1.99E+00 (0.10 km NNE) |
| Apr-Jun | 1.55E-01 (0.10 km NNE) | 8.56E-01 (0.10 km NNE) | 1.04E-01 (0.10 km NNE) | 8.51E-01 (0.10 km NNE) |
| Jul-Sep | 1.69E-01 (0.10 km NNE) | 9.15E-01 (0.10 km NNE) | 1.13E-01 (0.10 km NNE) | 9.06E-01 (0.10 km NNE) |
| Oct-Dec | 2.20E-01 (0.10 km NNE) | 1.40E+00 (0.10 km NNE) | 1.47E-01 (0.10 km NNE) | 1.36E+00 (0.10 km NNE) |
| Jan-Dec | 6.60E-01 (0.10 km NNE) | 5.22E+00 (0.10 km NNE) | 4.42E-01 (0.10 km NNE) | 5.11E+00 (0.10 km NNE) |

[a] All directions and distances are with respect to the reactor building vent.

## 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 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 the 10-year period from 1994 through 2003 were used as input to the "AEOLUS-3" computer program (Reference 6). 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 hypothetical 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 (particulates, radioiodines, and tritium) released in gaseous effluents from PNPS during 2006 resulted in a maximum total body dose (teen age class) of 0.46 mrem. The maximum organ dose (child age class, thyroid) was 0.81 mrem. Both of these doses occurred to hypothetical individuals at the shoreline 0.10 kilometers NNE of the PNPS Reactor Building, an area under Entergy control. For the more "realistic" individuals at offsite locations, the maximum total body dose was 0.026 mrem (child age class at nearest garden location, 0.87 kilometers SE from the Reactor Building), while the maximum organ dose was 0.038 mrem (infant thyroid at nearest milk animal location, 3.97 kilometers WSW from the Reactor Building).

Table 4.2-A

Maximum Individual Organ Dose at Receptor Location -- mrem
From Gaseous Release Period: Jan-Mar 2006

| Receptor: | Bound | Resident | Garden | Cow/Goat | Cow/Meat | Meat |
|---|---|---|---|---|---|---|
| Direction: | NNE | ESE | SE | WSW | W | S |
| Distance[1]: | 0.10 km | 0.80 km | 0.87 km | 3.97 km | 5.77 km | 3.80 km |
| Pathway[2]: | DI | DI | DIV[3] | DIVCG[3] | DIVCM[3] | DIVM[3] |
| Age Class: Adult | | | | | | |
| Bone | 2.32E-03 | 3.98E-05 | 8.44E-04 | 8.42E-05 | 2.89E-05 | 6.18E-05 |
| GI-LLI | 1.33E-01 | 1.58E-03 | 4.79E-03 | 5.52E-04 | 2.05E-04 | 3.01E-04 |
| Kidney | 1.32E-01 | 1.57E-03 | 4.66E-03 | 5.47E-04 | 2.01E-04 | 2.92E-04 |
| Liver | 1.32E-01 | 1.57E-03 | 4.67E-03 | 5.48E-04 | 2.02E-04 | 2.92E-04 |
| Lung | 1.35E-01 | 1.61E-03 | 4.68E-03 | 5.40E-04 | 2.02E-04 | 2.92E-04 |
| Thyroid | 1.94E-01 | 2.26E-03 | 6.65E-03 | 1.90E-03 | 3.31E-04 | 4.79E-04 |
| T.Body | 1.32E-01 | 1.57E-03 | 4.68E-03 | 5.46E-04 | 2.02E-04 | 2.93E-04 |
| Age Class: Teen | | | | | | |
| Bone | 2.70E-03 | 4.41E-05 | 1.30E-03 | 1.40E-04 | 4.40E-05 | 9.35E-05 |
| GI-LLI | 1.34E-01 | 1.59E-03 | 5.38E-03 | 6.61E-04 | 2.23E-04 | 3.25E-04 |
| Kidney | 1.33E-01 | 1.59E-03 | 5.24E-03 | 6.60E-04 | 2.19E-04 | 3.16E-04 |
| Liver | 1.33E-01 | 1.58E-03 | 5.26E-03 | 6.63E-04 | 2.19E-04 | 3.16E-04 |
| Lung | 1.39E-01 | 1.65E-03 | 5.27E-03 | 6.48E-04 | 2.20E-04 | 3.17E-04 |
| Thyroid | 2.14E-01 | 2.48E-03 | 7.13E-03 | 2.72E-03 | 3.65E-04 | 4.83E-04 |
| T.Body | 1.33E-01 | 1.58E-03 | 5.27E-03 | 6.55E-04 | 2.20E-04 | 3.17E-04 |
| Age Class: Child | | | | | | |
| Bone | 3.19E-03 | 4.94E-05 | 3.07E-03 | 3.37E-04 | 1.04E-04 | 2.20E-04 |
| GI-LLI | 1.18E-01 | 1.40E-03 | 7.51E-03 | 9.73E-04 | 3.12E-04 | 4.50E-04 |
| Kidney | 1.18E-01 | 1.41E-03 | 7.42E-03 | 9.87E-04 | 3.09E-04 | 4.43E-04 |
| Liver | 1.18E-01 | 1.40E-03 | 7.45E-03 | 9.93E-04 | 3.10E-04 | 4.45E-04 |
| Lung | 1.23E-01 | 1.46E-03 | 7.44E-03 | 9.65E-04 | 3.09E-04 | 4.44E-04 |
| Thyroid | 2.17E-01 | 2.50E-03 | 1.01E-02 | 5.03E-03 | 5.56E-04 | 6.89E-04 |
| T.Body | 1.18E-01 | 1.40E-03 | 7.48E-03 | 9.78E-04 | 3.11E-04 | 4.48E-04 |
| Age Class: Infant | | | | | | |
| Bone | 2.64E-03 | 4.34E-05 | 3.06E-05 | 3.03E-04 | 6.91E-06 | 2.23E-06 |
| GI-LLI | 6.83E-02 | 8.19E-04 | 5.82E-04 | 7.44E-04 | 3.65E-05 | 3.39E-05 |
| Kidney | 6.86E-02 | 8.22E-04 | 5.84E-04 | 7.82E-04 | 3.77E-05 | 3.40E-05 |
| Liver | 6.85E-02 | 8.22E-04 | 5.84E-04 | 8.02E-04 | 3.78E-05 | 3.40E-05 |
| Lung | 7.35E-02 | 8.77E-04 | 6.23E-04 | 7.44E-04 | 3.78E-05 | 3.61E-05 |
| Thyroid | 1.60E-01 | 1.83E-03 | 1.30E-03 | 1.02E-02 | 3.78E-04 | 7.77E-05 |
| T.Body | 6.82E-02 | 8.18E-04 | 5.81E-04 | 7.60E-04 | 3.69E-05 | 3.39E-05 |

[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
C = Cow Milk G = Goat Milk 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.

Table 4.2-B

Maximum Individual Organ Dose at Receptor Location -- mrem
From Gaseous Release Period: Apr-Jun 2006

| Receptor:<br>Direction:<br>Distance[1]:<br>Pathway[2]: | Bound<br>NNE<br>0.10 km<br>DI | Resident<br>ESE<br>0.80 km<br>DI | Garden<br>SE<br>0.87 km<br>DIV | Cow/Goat<br>WSW<br>3.97 km<br>DIVCG | Cow/Meat<br>W<br>5.77 km<br>DIVCM | Meat<br>S<br>3.80 km<br>DIVM |
|---|---|---|---|---|---|---|
| Age Class: Adult | | | | | | |
| Bone | 6.19E-04 | 8.61E-06 | 2.92E-04 | 2.62E-05 | 8.92E-06 | 1.88E-05 |
| GI-LLI | 1.11E-01 | 1.31E-03 | 3.97E-03 | 4.59E-04 | 1.71E-04 | 2.48E-04 |
| Kidney | 1.11E-01 | 1.31E-03 | 3.92E-03 | 4.58E-04 | 1.69E-04 | 2.45E-04 |
| Liver | 1.10E-01 | 1.31E-03 | 3.92E-03 | 4.56E-04 | 1.69E-04 | 2.45E-04 |
| Lung | 1.12E-01 | 1.33E-03 | 3.93E-03 | 4.54E-04 | 1.70E-04 | 2.45E-04 |
| Thyroid | 1.64E-01 | 1.89E-03 | 5.48E-03 | 1.30E-03 | 2.49E-04 | 3.59E-04 |
| T.Body | 1.10E-01 | 1.30E-03 | 3.93E-03 | 4.56E-04 | 1.69E-04 | 2.45E-04 |
| Age Class: Teen | | | | | | |
| Bone | 8.04E-04 | 1.06E-05 | 4.49E-04 | 4.36E-05 | 1.36E-05 | 2.85E-05 |
| GI-LLI | 1.12E-01 | 1.32E-03 | 4.46E-03 | 5.50E-04 | 1.86E-04 | 2.68E-04 |
| Kidney | 1.12E-01 | 1.32E-03 | 4.41E-03 | 5.51E-04 | 1.84E-04 | 2.65E-04 |
| Liver | 1.12E-01 | 1.32E-03 | 4.41E-03 | 5.48E-04 | 1.84E-04 | 2.65E-04 |
| Lung | 1.15E-01 | 1.35E-03 | 4.43E-03 | 5.45E-04 | 1.85E-04 | 2.66E-04 |
| Thyroid | 1.81E-01 | 2.08E-03 | 5.91E-03 | 1.83E-03 | 2.75E-04 | 3.69E-04 |
| T.Body | 1.11E-01 | 1.32E-03 | 4.42E-03 | 5.47E-04 | 1.84E-04 | 2.65E-04 |
| Age Class: Child | | | | | | |
| Bone | 1.04E-03 | 1.32E-05 | 1.06E-03 | 1.05E-04 | 3.20E-05 | 6.72E-05 |
| GI-LLI | 9.85E-02 | 1.16E-03 | 6.28E-03 | 8.16E-04 | 2.61E-04 | 3.75E-04 |
| Kidney | 9.89E-02 | 1.17E-03 | 6.25E-03 | 8.24E-04 | 2.60E-04 | 3.73E-04 |
| Liver | 9.86E-02 | 1.17E-03 | 6.24E-03 | 8.19E-04 | 2.60E-04 | 3.72E-04 |
| Lung | 1.01E-01 | 1.20E-03 | 6.26E-03 | 8.12E-04 | 2.60E-04 | 3.73E-04 |
| Thyroid | 1.85E-01 | 2.12E-03 | 8.41E-03 | 3.34E-03 | 4.12E-04 | 5.25E-04 |
| T.Body | 9.84E-02 | 1.16E-03 | 6.27E-03 | 8.18E-04 | 2.61E-04 | 3.74E-04 |
| Age Class: Infant | | | | | | |
| Bone | 7.98E-04 | 1.06E-05 | 7.45E-06 | 9.51E-05 | 2.19E-06 | 4.26E-07 |
| GI-LLI | 5.67E-02 | 6.71E-04 | 4.77E-04 | 6.26E-04 | 3.02E-05 | 2.74E-05 |
| Kidney | 5.70E-02 | 6.74E-04 | 4.79E-04 | 6.45E-04 | 3.09E-05 | 2.75E-05 |
| Liver | 5.69E-02 | 6.74E-04 | 4.79E-04 | 6.42E-04 | 3.08E-05 | 2.75E-05 |
| Lung | 5.95E-02 | 7.01E-04 | 4.98E-04 | 6.24E-04 | 3.09E-05 | 2.85E-05 |
| Thyroid | 1.36E-01 | 1.55E-03 | 1.10E-03 | 6.50E-03 | 2.36E-04 | 6.11E-05 |
| T.Body | 5.67E-02 | 6.71E-04 | 4.77E-04 | 6.33E-04 | 3.04E-05 | 2.74E-05 |

[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
C = Cow Milk G = Goat Milk M = Meat

Table 4.2-C

Maximum Individual Organ Dose at Receptor Location -- mrem
From Gaseous Release Period: Jul-Sep 2006

| Receptor: | Bound | Resident | Garden | Cow/Goat | Cow/Meat | Meat |
|---|---|---|---|---|---|---|
| Direction: | NNE | ESE | SE | WSW | W | S |
| Distance[1]: | 0.10 km | 0.80 km | 0.87 km | 3.97 km | 5.77 km | 3.80 km |
| Pathway[2]: | DI | DI | DIV | DIVCG | DIVCM | DIVM |
| Age Class: Adult | | | | | | |
| Bone | 7.31E-04 | 1.02E-05 | 3.23E-04 | 2.92E-05 | 9.85E-06 | 2.07E-05 |
| GI-LLI | 1.12E-01 | 1.32E-03 | 4.02E-03 | 4.66E-04 | 1.74E-04 | 2.53E-04 |
| Kidney | 1.12E-01 | 1.32E-03 | 3.97E-03 | 4.66E-04 | 1.72E-04 | 2.50E-04 |
| Liver | 1.12E-01 | 1.32E-03 | 3.96E-03 | 4.63E-04 | 1.72E-04 | 2.49E-04 |
| Lung | 1.14E-01 | 1.34E-03 | 3.97E-03 | 4.61E-04 | 1.72E-04 | 2.50E-04 |
| Thyroid | 1.78E-01 | 2.05E-03 | 5.84E-03 | 1.53E-03 | 2.75E-04 | 3.98E-04 |
| T.Body | 1.11E-01 | 1.32E-03 | 3.97E-03 | 4.63E-04 | 1.72E-04 | 2.50E-04 |
| Age Class: Teen | | | | | | |
| Bone | 9.46E-04 | 1.26E-05 | 4.97E-04 | 4.85E-05 | 1.50E-05 | 3.13E-05 |
| GI-LLI | 1.13E-01 | 1.34E-03 | 4.52E-03 | 5.58E-04 | 1.89E-04 | 2.74E-04 |
| Kidney | 1.13E-01 | 1.34E-03 | 4.46E-03 | 5.61E-04 | 1.87E-04 | 2.70E-04 |
| Liver | 1.13E-01 | 1.33E-03 | 4.45E-03 | 5.57E-04 | 1.87E-04 | 2.70E-04 |
| Lung | 1.16E-01 | 1.37E-03 | 4.47E-03 | 5.53E-04 | 1.88E-04 | 2.71E-04 |
| Thyroid | 2.00E-01 | 2.29E-03 | 6.27E-03 | 2.18E-03 | 3.04E-04 | 4.06E-04 |
| T.Body | 1.12E-01 | 1.33E-03 | 4.46E-03 | 5.55E-04 | 1.87E-04 | 2.70E-04 |
| Age Class: Child | | | | | | |
| Bone | 1.22E-03 | 1.56E-05 | 1.18E-03 | 1.17E-04 | 3.53E-05 | 7.38E-05 |
| GI-LLI | 9.95E-02 | 1.18E-03 | 6.35E-03 | 8.28E-04 | 2.65E-04 | 3.82E-04 |
| Kidney | 1.00E-01 | 1.18E-03 | 6.31E-03 | 8.39E-04 | 2.64E-04 | 3.80E-04 |
| Liver | 9.97E-02 | 1.18E-03 | 6.30E-03 | 8.32E-04 | 2.64E-04 | 3.80E-04 |
| Lung | 1.03E-01 | 1.21E-03 | 6.32E-03 | 8.24E-04 | 2.64E-04 | 3.80E-04 |
| Thyroid | 2.08E-01 | 2.38E-03 | 8.92E-03 | 4.01E-03 | 4.60E-04 | 5.78E-04 |
| T.Body | 9.94E-02 | 1.18E-03 | 6.33E-03 | 8.31E-04 | 2.65E-04 | 3.81E-04 |
| Age Class: Infant | | | | | | |
| Bone | 9.43E-04 | 1.25E-05 | 8.85E-06 | 1.07E-04 | 2.54E-06 | 5.39E-07 |
| GI-LLI | 5.73E-02 | 6.78E-04 | 4.82E-04 | 6.35E-04 | 3.07E-05 | 2.79E-05 |
| Kidney | 5.77E-02 | 6.83E-04 | 4.85E-04 | 6.60E-04 | 3.17E-05 | 2.81E-05 |
| Liver | 5.76E-02 | 6.82E-04 | 4.85E-04 | 6.56E-04 | 3.15E-05 | 2.81E-05 |
| Lung | 6.03E-02 | 7.12E-04 | 5.06E-04 | 6.33E-04 | 3.15E-05 | 2.92E-05 |
| Thyroid | 1.58E-01 | 1.78E-03 | 1.27E-03 | 8.04E-03 | 2.96E-04 | 7.24E-05 |
| T.Body | 5.73E-02 | 6.78E-04 | 4.82E-04 | 6.44E-04 | 3.10E-05 | 2.80E-05 |

[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
C = Cow Milk G = Goat Milk M = Meat

Table 4.2-D

Maximum Individual Organ Dose at Receptor Location -- mrem
From Gaseous Release Period: Oct-Dec 2006

| Receptor:<br>Direction:<br>Distance[1]:<br>Pathway[2]: | Bound<br>NNE<br>0.10 km<br>DI | Resident<br>ESE<br>0.80 km<br>DI | Garden<br>SE<br>0.87 km<br>DIV[3] | Cow/Goat<br>WSW<br>3.97 km<br>DIVCG[3] | Cow/Meat<br>W<br>5.77 km<br>DIVCM[3] | Meat<br>S<br>3.80 km<br>DIVM[3] |
|---|---|---|---|---|---|---|
| Age Class: Adult | | | | | | |
| Bone | 7.70E-04 | 1.07E-05 | 3.89E-04 | 3.65E-05 | 1.20E-05 | 2.52E-05 |
| GI-LLI | 9.88E-02 | 1.17E-03 | 3.56E-03 | 4.13E-04 | 1.54E-04 | 2.24E-04 |
| Kidney | 9.87E-02 | 1.17E-03 | 3.50E-03 | 4.15E-04 | 1.52E-04 | 2.21E-04 |
| Liver | 9.85E-02 | 1.16E-03 | 3.50E-03 | 4.11E-04 | 1.52E-04 | 2.20E-04 |
| Lung | 1.00E-01 | 1.18E-03 | 3.50E-03 | 4.06E-04 | 1.52E-04 | 2.20E-04 |
| Thyroid | 1.71E-01 | 1.97E-03 | 6.22E-03 | 2.24E-03 | 3.21E-04 | 4.61E-04 |
| T.Body | 9.83E-02 | 1.16E-03 | 3.50E-03 | 4.09E-04 | 1.52E-04 | 2.20E-04 |
| Age Class: Teen | | | | | | |
| Bone | 1.00E-03 | 1.33E-05 | 6.00E-04 | 6.08E-05 | 1.82E-05 | 3.81E-05 |
| GI-LLI | 9.97E-02 | 1.18E-03 | 4.00E-03 | 4.95E-04 | 1.67E-04 | 2.42E-04 |
| Kidney | 9.98E-02 | 1.18E-03 | 3.94E-03 | 5.03E-04 | 1.66E-04 | 2.39E-04 |
| Liver | 9.95E-02 | 1.18E-03 | 3.93E-03 | 4.95E-04 | 1.65E-04 | 2.38E-04 |
| Lung | 1.03E-01 | 1.21E-03 | 3.95E-03 | 4.87E-04 | 1.65E-04 | 2.39E-04 |
| Thyroid | 1.93E-01 | 2.21E-03 | 6.47E-03 | 3.28E-03 | 3.54E-04 | 4.51E-04 |
| T.Body | 9.92E-02 | 1.17E-03 | 3.94E-03 | 4.92E-04 | 1.65E-04 | 2.39E-04 |
| Age Class: Child | | | | | | |
| Bone | 1.29E-03 | 1.65E-05 | 1.42E-03 | 1.47E-04 | 4.31E-05 | 8.99E-05 |
| GI-LLI | 8.78E-02 | 1.04E-03 | 5.61E-03 | 7.32E-04 | 2.34E-04 | 3.38E-04 |
| Kidney | 8.82E-02 | 1.04E-03 | 5.57E-03 | 7.53E-04 | 2.34E-04 | 3.36E-04 |
| Liver | 8.79E-02 | 1.04E-03 | 5.56E-03 | 7.42E-04 | 2.33E-04 | 3.35E-04 |
| Lung | 9.06E-02 | 1.07E-03 | 5.57E-03 | 7.26E-04 | 2.33E-04 | 3.35E-04 |
| Thyroid | 2.01E-01 | 2.29E-03 | 9.23E-03 | 6.18E-03 | 5.54E-04 | 6.47E-04 |
| T.Body | 8.77E-02 | 1.04E-03 | 5.60E-03 | 7.38E-04 | 2.34E-04 | 3.37E-04 |
| Age Class: Infant | | | | | | |
| Bone | 9.88E-04 | 1.31E-05 | 9.28E-06 | 1.40E-04 | 3.36E-06 | 5.94E-07 |
| GI-LLI | 5.05E-02 | 5.99E-04 | 4.25E-04 | 5.61E-04 | 2.71E-05 | 2.47E-05 |
| Kidney | 5.09E-02 | 6.03E-04 | 4.28E-04 | 6.04E-04 | 2.87E-05 | 2.49E-05 |
| Liver | 5.08E-02 | 6.02E-04 | 4.28E-04 | 5.97E-04 | 2.84E-05 | 2.48E-05 |
| Lung | 5.33E-02 | 6.29E-04 | 4.47E-04 | 5.58E-04 | 2.78E-05 | 2.59E-05 |
| Thyroid | 1.55E-01 | 1.75E-03 | 1.24E-03 | 1.33E-02 | 4.72E-04 | 7.29E-05 |
| T.Body | 5.06E-02 | 5.99E-04 | 4.26E-04 | 5.77E-04 | 2.77E-05 | 2.47E-05 |

[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
C = Cow Milk G = Goat Milk 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.

Table 4.2-E

Maximum Individual Organ Dose at Receptor Location -- mrem
From Gaseous Release Period: Jan-Dec 2006

| Receptor:<br>Direction:<br>Distance[1]:<br>Pathway[2]: | Bound<br>NNE<br>0.10 km<br>DI | Resident<br>ESE<br>0.80 km<br>DI | Garden<br>SE<br>0.87 km<br>DIV[3] | Cow/Goat<br>WSW<br>3.97 km<br>DIVCG[3] | Cow/Meat<br>W<br>5.77 km<br>DIVCM[3] | Meat<br>S<br>3.80 km<br>DIVM[3] |
|---|---|---|---|---|---|---|
| Age Class: Adult | | | | | | |
| Bone | 4.44E-03 | 6.94E-05 | 1.85E-03 | 1.76E-04 | 5.97E-05 | 1.26E-04 |
| GI-LLI | 4.54E-01 | 5.38E-03 | 1.63E-02 | 1.89E-03 | 7.04E-04 | 1.03E-03 |
| Kidney | 4.53E-01 | 5.37E-03 | 1.61E-02 | 1.89E-03 | 6.95E-04 | 1.01E-03 |
| Liver | 4.52E-01 | 5.36E-03 | 1.60E-02 | 1.88E-03 | 6.95E-04 | 1.01E-03 |
| Lung | 4.62E-01 | 5.46E-03 | 1.61E-02 | 1.86E-03 | 6.95E-04 | 1.01E-03 |
| Thyroid | 7.07E-01 | 8.17E-03 | 2.42E-02 | 6.97E-03 | 1.18E-03 | 1.70E-03 |
| T.Body | 4.52E-01 | 5.35E-03 | 1.61E-02 | 1.87E-03 | 6.95E-04 | 1.01E-03 |
| Age Class: Teen | | | | | | |
| Bone | 5.45E-03 | 8.06E-05 | 2.85E-03 | 2.93E-04 | 9.08E-05 | 1.91E-04 |
| GI-LLI | 4.58E-01 | 5.43E-03 | 1.84E-02 | 2.26E-03 | 7.65E-04 | 1.11E-03 |
| Kidney | 4.58E-01 | 5.43E-03 | 1.80E-02 | 2.28E-03 | 7.56E-04 | 1.09E-03 |
| Liver | 4.57E-01 | 5.41E-03 | 1.80E-02 | 2.26E-03 | 7.55E-04 | 1.09E-03 |
| Lung | 4.73E-01 | 5.59E-03 | 1.81E-02 | 2.23E-03 | 7.57E-04 | 1.09E-03 |
| Thyroid | 7.88E-01 | 9.06E-03 | 2.58E-02 | 1.00E-02 | 1.30E-03 | 1.71E-03 |
| T.Body | 4.56E-01 | 5.40E-03 | 1.81E-02 | 2.25E-03 | 7.56E-04 | 1.09E-03 |
| Age Class: Child | | | | | | |
| Bone | 6.73E-03 | 9.47E-05 | 6.74E-03 | 7.07E-04 | 2.14E-04 | 4.51E-04 |
| GI-LLI | 4.04E-01 | 4.78E-03 | 2.57E-02 | 3.35E-03 | 1.07E-03 | 1.54E-03 |
| Kidney | 4.05E-01 | 4.80E-03 | 2.55E-02 | 3.40E-03 | 1.07E-03 | 1.53E-03 |
| Liver | 4.04E-01 | 4.79E-03 | 2.56E-02 | 3.39E-03 | 1.07E-03 | 1.53E-03 |
| Lung | 4.18E-01 | 4.94E-03 | 2.56E-02 | 3.33E-03 | 1.07E-03 | 1.53E-03 |
| Thyroid | 8.12E-01 | 9.28E-03 | 3.67E-02 | 1.86E-02 | 1.98E-03 | 2.44E-03 |
| T.Body | 4.03E-01 | 4.78E-03 | 2.57E-02 | 3.36E-03 | 1.07E-03 | 1.54E-03 |
| Age Class: Infant | | | | | | |
| Bone | 5.37E-03 | 7.97E-05 | 5.62E-05 | 6.45E-04 | 1.50E-05 | 3.78E-06 |
| GI-LLI | 2.33E-01 | 2.77E-03 | 1.97E-03 | 2.57E-03 | 1.25E-04 | 1.14E-04 |
| Kidney | 2.34E-01 | 2.78E-03 | 1.98E-03 | 2.69E-03 | 1.29E-04 | 1.15E-04 |
| Liver | 2.34E-01 | 2.78E-03 | 1.97E-03 | 2.70E-03 | 1.29E-04 | 1.14E-04 |
| Lung | 2.47E-01 | 2.92E-03 | 2.07E-03 | 2.56E-03 | 1.28E-04 | 1.20E-04 |
| Thyroid | 6.09E-01 | 6.91E-03 | 4.91E-03 | 3.81E-02 | 1.38E-03 | 2.84E-04 |
| T.Body | 2.33E-01 | 2.77E-03 | 1.97E-03 | 2.61E-03 | 1.26E-04 | 1.14E-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
C = Cow Milk G = Goat Milk 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 2006 resulted in a maximum total body dose (teen age class) of 0.00000074 mrem. The maximum organ dose (teen age class, liver) was 0.0000011 mrem.

Table 4.3-A

Maximum Individual Organ Doses -- mrem
From Liquid Release Period: Jan-Mar 2006

| Organ | Age Class Organ Dose – mrem * | | |
|---|---|---|---|
| | Adult | Teen | Child |
| Bone | 5.09E-07 | 8.57E-07 | 6.75E-07 |
| GI-LLI | 6.43E-07 | 7.75E-07 | 2.78E-07 |
| Kidney | 4.15E-07 | 7.11E-07 | 3.57E-07 |
| Liver | 8.32E-07 | 1.13E-06 | 7.57E-07 |
| Lung | 2.79E-07 | 5.85E-07 | 2.39E-07 |
| Thyroid | 2.12E-07 | 5.04E-07 | 1.73E-07 |
| T.Body | 6.53E-07 | 7.61E-07 | 3.11E-07 |

* 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 the entire year. 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: Apr-Jun 2006

No Liquid Effluent Discharges Occurred During This Period

| Organ | Age Class Organ Dose – mrem | | |
|---|---|---|---|
| | Adult | Teen | Child |
| Bone | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| GI-LLI | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Kidney | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Liver | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Lung | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Thyroid | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| T.Body | 0.00E+00 | 0.00E+00 | 0.00E+00 |

Table 4.3-C

Maximum Individual Organ Doses -- mrem
From Liquid Release Period: Jul-Sep 2006

No Liquid Effluent Discharges Occurred During This Period

| Organ | Age Class Organ Dose – mrem | | |
|---|---|---|---|
| | Adult | Teen | Child |
| Bone | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| GI-LLI | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Kidney | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Liver | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Lung | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Thyroid | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| T.Body | 0.00E+00 | 0.00E+00 | 0.00E+00 |

Table 4.3-D

Maximum Individual Organ Doses -- mrem
From Liquid Release Period: Oct-Dec 2006

No Liquid Effluent Discharges Occurred During This Period

| Organ | Age Class Organ Dose – mrem * | | |
|---|---|---|---|
| | Adult | Teen | Child |
| Bone | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| GI-LLI | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Kidney | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Liver | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Lung | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Thyroid | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| T.Body | 0.00E+00 | 0.00E+00 | 0.00E+00 |

* 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-E

Maximum Individual Organ Doses -- mrem
From Liquid Release Period: Jan-Dec 2006

| Organ | Age Class Organ Dose – mrem * | | |
|---|---|---|---|
| | Adult | Teen | Child |
| Bone | 4.96E-07 | 8.35E-07 | 6.58E-07 |
| GI-LLI | 6.26E-07 | 7.55E-07 | 2.71E-07 |
| Kidney | 4.04E-07 | 6.93E-07 | 3.48E-07 |
| Liver | 8.11E-07 | 1.10E-06 | 7.38E-07 |
| Lung | 2.72E-07 | 5.70E-07 | 2.33E-07 |
| Thyroid | 2.06E-07 | 4.91E-07 | 1.69E-07 |
| T.Body | 6.36E-07 | 7.41E-07 | 3.03E-07 |

* 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 the 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 site 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 not 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 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 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 625 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 95.1 ± 81.4 mR/yr to 65.2 ± 11.4 mR/yr. Such a corrected dose is not statistically different from the Zone 4 average of 63.8 ± 12.3 mR/yr, and is indicative of natural background radiation.

Although the annual exposure at TLD location OA was 564 mR above the average Zone 4 exposure, 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 2.6 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 61.6 ± 10.4 mR (based on continuous occupancy at this location), which compares quite well to the Zone 4 annual average background radiation level of 60.2 ± 10.4 mR. Statistically, there is no difference between these two values.

It must be emphasized that the projected ambient exposures discussed on the previous page are calculated to occur to a maximum-exposed hypothetical 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 real members of the general public, so the fact that the dose to the hypothetical 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 within the PNPS owner controlled area. Their annual incremental radiation dose above background during 2006 is estimated as being about 7.8 mrem, based on the average exposure measured by the TLD in the building.

The exposures measured by the TLD 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 personnel in this facility 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 2006. Dose calculations performed in the same manner as those outlined in Section 4.2 for airborne effluent releases yielded a projected total body dose to the maximum-exposed individual (500 hr/yr exposure) of about 0.0017 mrem, resulting from inhalation.

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 ambient dose received by a member of the National Guard is estimated to be about 11.6 mrem, with the corresponding inhalation dose as described above equaling about 0.0076 mrem.

Again, it must be emphasized that the above-described exposures were received by personnel who are employees or contractors of Entergy, accessing areas or facilities 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.

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 2.6 mrem/year.

Table 5.0

Average TLD Exposures By Distance Zone During 2006

| Exposure Period | Average Exposure ± Standard Deviation: mR/period | | | |
|---|---|---|---|---|
| | Zone 1* 0-3 km | Zone 2 3-8 km | Zone 3 8-15 km | Zone 4 >15 km |
| Jan-Mar | 21.9 ± 18.4 | 14.1 ± 1.7 | 14.2 ± 1.7 | 14.2 ± 1.9 |
| Apr-Jun | 26.8 ± 27.7 | 15.8 ± 1.9 | 15.6 ± 1.4 | 16.9 ± 2.5 |
| Jul-Sep | 22.0 ± 21.3 | 13.7 ± 2.0 | 14.1 ± 1.9 | 14.9 ± 3.0 |
| Oct-Dec | 23.8 ± 24.8 | 13.4 ± 2.1 | 12.5 ± 1.5 | 14.1 ± 2.4 |
| Jan-Dec | 94.4 ± 92.7** | 57.0 ± 8.4 | 56.3 ± 7.7 | 60.2 ± 10.4 |

* 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 61.7 ± 8.6 mR/yr.

## 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 2006 were a small percentage of the corresponding effluent control.

Table 6.1

Percent of ODCM Effluent Control Limits
for Gaseous Effluent Releases During 2006

A. Instantaneous Dose Rate Limit - Noble Gases
PNPS ODCM Control 3.3.1.a
Limit: 500 mrem/yr Total Body Dose

| Period | Value - mrem/yr | Fraction of Limit |
|---|---|---|
| Jan-Dec | 4.42E-01 | 8.84E-02% |

B. Instantaneous Dose Rate Limit - Noble Gases
PNPS ODCM Control 3.3.1.a
Limit: 3000 mrem/yr Skin Dose

| Period | Value - mrem/yr | Fraction of Limit |
|---|---|---|
| Jan-Dec | 5.11E+00 | 1.70E-01% |

C. Instantaneous Dose Rate Limit - Particulates, Iodines, & Tritium
PNPS ODCM Control 3.3.1.b
Limit: 1500 mrem/yr Organ Dose

| Period | Value - mrem/yr | Fraction of Limit |
|---|---|---|
| Jan-Dec | 8.12E-01 | 5.41E-02% |

D. Quarterly Dose Objective - Noble Gas Gamma Air Dose
PNPS ODCM Control 3.3.2.a
Objective: 5 mrad Gamma Air Dose

| Period | Value – mrad | Fraction of Limit |
|---|---|---|
| Jan-Mar | 1.16E-01 | 2.32E+00% |
| Apr-Jun | 1.55E-01 | 3.10E+00% |
| Jul-Sep | 1.69E-01 | 3.38E+00% |
| Oct-Dec | 2.20E-01 | 4.40E+00% |

E. Annual Dose Objective - Noble Gas Gamma Air Dose
PNPS ODCM Control 3.3.2.b
Objective: 10 mrad Gamma Air Dose

| Period | Value - mrad/yr | Fraction of Limit |
|---|---|---|
| Jan-Dec | 6.60E-01 | 6.60E+00% |

Table 6.1 (continued)

Percent of ODCM Effluent Control Limits
for Gaseous Effluent Releases During 2006

F. Quarterly Dose Objective - Noble Gas Beta Air Dose
PNPS ODCM Control 3.3.2.a
Objective: 10 mrad Beta Air Dose

| Period | Value - mrad | Fraction of Limit |
|---|---|---|
| Jan-Mar | 2.04E+00 | 2.04E+01% |
| Apr-Jun | 8.56E-01 | 8.56E+00% |
| Jul-Sep | 9.15E-01 | 9.15E+00% |
| Oct-Dec | 1.40E+00 | 1.40E+01% |

G. Annual Dose Objective - Noble Gas Beta Air Dose
PNPS ODCM Control 3.3.2.b
Objective: 20 mrad Beta Air Dose

| Period | Value - mrad/yr | Fraction of Limit |
|---|---|---|
| Jan-Dec | 5.22E+00 | 2.61E+01% |

H. Quarterly Dose Objective - Particulates, Iodines, & Tritium
PNPS ODCM Control 3.3.3.a
Objective: 7.5 mrem Organ Dose

| Period | Value - mrem | Fraction of Limit |
|---|---|---|
| Jan-Mar | 2.17E-01 | 2.90E+00% |
| Apr-Jun | 1.85E-01 | 2.47E+00% |
| Jul-Sep | 2.08E-01 | 2.78E+00% |
| Oct-Dec | 2.01E-01 | 2.68E+00% |

I. Annual Dose Objective - Particulates, Iodines, & Tritium
PNPS ODCM Control 3.3.3.b
Objective: 15 mrem Organ Dose

| Period | Value - mrem/yr | Fraction of Limit |
|---|---|---|
| Jan-Dec | 8.12E-01 | 5.41E+00% |

## 6.2 Liquid Effluent Releases

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 concentrations, as well as organ and total body doses from Pilgrim Station's liquid releases during 2006 were a small percentage of the corresponding effluent controls.

Table 6.2

Percent of ODCM Effluent Control Limits
for Liquid Effluent Releases During 2006

A. Fission and Activation Product Effluent Concentration Limit
PNPS ODCM Control 3.2.1
Limit: 10CFR20 Appendix B, Table 2, Column 2 Value

| Period | Value - µCi/mL | Fraction of Limit |
|---|---|---|
| Jan-Mar | 1.22E-13 | 1.09E-05% |
| Apr-Jun | 0.00E+00 | 0.00E+00% |
| Jul-Sep | 0.00E+00 | 0.00E+00% |
| Oct-Dec | 0.00E+00 | 0.00E+00% |
| Jan-Dec | 2.97E-14 | 2.66E-06% |

B. Tritium Average Concentration Limit
PNPS ODCM Control 3.2.1
Limit: 1.0E-03 µCi/mL

| Period | Value - µCi/mL | Fraction of Limit |
|---|---|---|
| Jan-Mar | 9.75E-10 | 9.75E-05% |
| Apr-Jun | 0.00E+00 | 0.00E+00% |
| Jul-Sep | 0.00E+00 | 0.00E+00% |
| Oct-Dec | 0.00E+00 | 0.00E+00% |
| Jan-Dec | 2.38E-10 | 2.38E-05% |

C. Dissolved and Entrained Noble Gases Concentration Limit
PNPS ODCM Control 3.2.1
Limit: 2.0E-04 µCi/mL

| Period | Value - µCi/mL | Fraction of Limit |
|---|---|---|
| Jan-Mar | 0.00E+00 | 0.00E+00% |
| Apr-Jun | 0.00E+00 | 0.00E+00% |
| Jul-Sep | 0.00E+00 | 0.00E+00% |
| Oct-Dec | 0.00E+00 | 0.00E+00% |
| Jan-Dec | 0.00E+00 | 0.00E+00% |

Table 6.2 (continued)

Percent of ODCM Effluent Control Limits
for Liquid Effluent Releases During 2006

D. Quarterly Total Body Dose Objective
PNPS ODCM Control 3.2.2.a
Objective: 1.5 mrem Total Body Dose

| Period | Value - mrem | Fraction of Limit |
|---|---|---|
| Jan-Mar | 7.61E-07 | 5.07E-05% |
| Apr-Jun | 0.00E+00 | 0.00E+00% |
| Jul-Sep | 0.00E+00 | 0.00E+00% |
| Oct-Dec | 0.00E+00 | 0.00E+00% |

E. Annual Total Body Dose Objective
PNPS ODCM Control 3.2.2.b
Objective: 3 mrem Total Body Dose

| Period | Value - mrem | Fraction of Limit |
|---|---|---|
| Jan-Dec | 7.41E-07 | 2.47E-05% |

F. Quarterly Organ Dose Objective
PNPS ODCM Control 3.2.2.a
Objective: 5 mrem Organ Dose

| Period | Value - mrem | Fraction of Limit |
|---|---|---|
| Jan-Mar | 1.13E-06 | 2.26E-05% |
| Apr-Jun | 0.00E+00 | 0.00E+00% |
| Jul-Sep | 0.00E+00 | 0.00E+00% |
| Oct-Dec | 0.00E+00 | 0.00E+00% |

G. Annual Organ Dose Objective
PNPS ODCM Control 3.2.2.b
Objective: 10 mrem Organ Dose

| Period | Value - mrem | Fraction of Limit |
|---|---|---|
| Jan-Dec | 1.10E-06 | 1.10E-05% |

## 7.0 RADIOACTIVE WASTE DISPOSAL DATA

Radioactive wastes that were shipped offsite for processing and disposal during the reporting period are described in Table 7.0, 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 7.0 for the following waste categories:

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

During the reporting period approximately 71.4 cubic meters of spent resins, filter sludges, etc., containing a total activity of about 284 Curies were shipped from PNPS for processing and disposal. Dry activated wastes and contaminated equipment shipped during the period totaled 250 cubic meters and contained 0.51 Curies of radioactivity. Five (5) shipments of irradiated components were shipped during the reporting period containing 0.99 cubic meters and 14,500 curies. The "Other" category, made up from "Hi Rad SFP Trash" consisted of 16.6 cubic meters and 0.49 curies. No shipments of irradiated fuel were made 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 7.0. There were five (5) shipments to Barnwell Management Disposal Facility; six (6) shipments to Oak Ridge, TN (Duratek/Energy Solutions) Bear Creek Facility; two (2) shipments to Oak Ridge, TN (Duratek/Energy Solutions) Gallaher Road Facility; and fifteen (15) shipments to Erwin, TN (Studsvik).

Table 7.0
Pilgrim Nuclear Power Station
Radioactive Effluent Release Report
Solid Waste and Irradiated Fuel Shipments
January-December 2006

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

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

| Type of waste | Jan-Dec 2006 | | |
|---|---|---|---|
| | Volume - $m^3$ | Curies | Total Error |
| a. Spent resins, filters, filter sludge's, evaporator bottoms, etc. | 7.14 E+01 | 2.84 E+02 | ± 25% |
| b. Dry activated waste, contaminated equipment, etc. | 2.50 E+02 | 5.13 E-01 | ± 25% |
| c. Irradiated components, control rods, etc. | 9.92E-01 | 1.45E+04 | ±25% |
| d. Other (describe): "Hi Rad" SPF Trash | 1.66E+01 | 4.86 E-01 | ±25% |

### 2. Estimate of major nuclide composition by type of waste[1]

| Type of waste | Radionuclide | Abundance | Total Error |
|---|---|---|---|
| a. Spent resins, filters, filter sludge's, evaporator bottoms, etc. | Mn-54 | 1.43% | ± 25% |
| | Fe-55 | 18.8% | ± 25% |
| | Co-60 | 16.2% | ± 25% |
| | Ni-63 | 2.15% | ± 25% |
| | Zn-65 | 9.05% | ± 25% |
| | Cs-137 | 50.3% | ± 25% |
| b. Dry activated waste, contaminated equipment, etc. | Mn-54 | 5.87% | ± 25% |
| | Fe-55 | 81.0% | ± 25% |
| | Co-60 | 11.0% | ± 25% |
| c. Irradiated components, control rods, etc. | Fe-55 | 11.2% | ± 25% |
| | Co-60 | 57.9% | ± 25% |
| | Ni-63 | 30.6% | ± 25% |
| d. Other (describe): "Hi Rad SFP" Trash | Mn-54 | 1.33% | ± 25% |
| | Fe-55 | 17.9% | ± 25% |
| | Co-60 | 8.89% | ± 25% |
| | Ni-63 | 71.5% | ± 25% |

[1] *"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 |
|---|---|---|
| 5 | Tractor-trailer (Hittman Transport Services) | Barnwell Waste Management Faculty |
| 6 | Tractor-trailer (Hittman Transport Services) | Duratek Services, Inc. Bear Creek |
| 2 | Tractor-trailer (Hittman Transport Services) | Duratek Services, Inc. Gallaher Road Facility |
| 14 | Tractor-trailer (Hittman Transport Services) | Studsvik Processing Facility,[2] Erwin, TN |
| 1 | Tractor Trailer (Studsvik/RACE Logistics,LLC) | Studsvik Processing Facility,[2] Erwin, 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, or Envirocare, Inc. in Clive, UT 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

The PNPS Offsite Dose Calculation Manual (ODCM) was not revised during the calendar year of 2006. Information regarding revisions to the ODCM can be found attached as Appendix B of this report.

## 9.0 REFERENCES


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 9, June 2003.

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.

6. 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 | Joint Frequency Distribution of Wind Directions and Speeds for the 33-ft Level of the 220-ft Tower | 48 |
| A-2 | Joint Frequency Distribution of Wind Directions and Speeds for the 220-ft Level of the 220-ft Tower | 58 |

# Table A-1
## Joint Frequency Distribution of Wind Directions and Speeds
## For the 33-ft level of the 220-ft Tower

Jan-Mar 2006

Class A Freq: 0.117

| 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 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 3 |
| 3.5-7.5 | 23 | 22 | 18 | 3 | 5 | 2 | 1 | 0 | 0 | 0 | 1 | 5 | 10 | 36 | 28 | 18 | 172 |
| 7.5-12.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 1 | 1 | 12 | 31 | 14 | 1 | 64 |
| 12.5-18.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 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 | 23 | 22 | 20 | 3 | 5 | 2 | 1 | 0 | 0 | 4 | 3 | 6 | 22 | 67 | 42 | 20 | 240 |

Class B Freq: 0.041

| 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 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 3 |
| 3.5-7.5 | 0 | 2 | 5 | 4 | 5 | 1 | 2 | 0 | 0 | 0 | 3 | 6 | 8 | 6 | 1 | 2 | 45 |
| 7.5-12.5 | 2 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 4 | 2 | 3 | 7 | 7 | 5 | 0 | 34 |
| 12.5-18.5 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 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 | 2 | 4 | 8 | 6 | 5 | 1 | 2 | 0 | 0 | 4 | 5 | 9 | 15 | 13 | 7 | 3 | 84 |

Class C Freq: 0.060

| 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 | 2 | 3 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 11 |
| 3.5-7.5 | 4 | 1 | 2 | 1 | 5 | 1 | 1 | 1 | 2 | 4 | 6 | 5 | 10 | 7 | 3 | 4 | 57 |
| 7.5-12.5 | 0 | 0 | 4 | 3 | 0 | 0 | 0 | 0 | 0 | 9 | 6 | 4 | 3 | 2 | 9 | 2 | 42 |
| 12.5-18.5 | 2 | 0 | 3 | 5 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 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 | 6 | 1 | 11 | 12 | 7 | 1 | 1 | 1 | 2 | 14 | 13 | 9 | 13 | 9 | 14 | 8 | 122 |

Class D Freq: 0.460

| 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 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 0.95-3.5 | 4 | 4 | 1 | 6 | 5 | 3 | 4 | 2 | 4 | 6 | 5 | 3 | 11 | 10 | 10 | 6 | 84 |
| 3.5-7.5 | 11 | 18 | 16 | 20 | 8 | 11 | 10 | 11 | 24 | 31 | 34 | 46 | 100 | 66 | 56 | 22 | 484 |
| 7.5-12.5 | 6 | 16 | 21 | 10 | 5 | 4 | 9 | 3 | 17 | 59 | 25 | 20 | 38 | 52 | 49 | 16 | 350 |
| 12.5-18.5 | 0 | 2 | 3 | 2 | 1 | 0 | 0 | 1 | 2 | 9 | 1 | 0 | 1 | 0 | 0 | 0 | 22 |
| 18.5-24 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| >24 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TOTAL | 21 | 40 | 41 | 38 | 20 | 18 | 23 | 17 | 49 | 105 | 65 | 69 | 150 | 128 | 115 | 44 | 943 |

## Table A-1 (continued)

Jan-Mar 2006

Class E Freq: 0.250

| mph | N | NNE | NE | ENE | E | ESE | SE | SSE | S | SSW | SW | WSW | W | WNW | NW | NNW | TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Calm-0.95 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 6 |
| 0.95-3.5 | 0 | 4 | 1 | 4 | 3 | 7 | 4 | 24 | 10 | 19 | 18 | 8 | 9 | 8 | 4 | 1 | 124 |
| 3.5-7.5 | 2 | 5 | 1 | 2 | 5 | 2 | 4 | 13 | 25 | 48 | 44 | 66 | 57 | 18 | 9 | 2 | 303 |
| 7.5-12.5 | 0 | 1 | 0 | 0 | 0 | 0 | 2 | 2 | 2 | 30 | 18 | 15 | 3 | 4 | 0 | 0 | 77 |
| 12.5-18.5 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 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 | 3 | 10 | 2 | 7 | 8 | 9 | 10 | 40 | 39 | 98 | 81 | 89 | 69 | 30 | 14 | 3 | 512 |

Class F Freq: 0.068

| 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 | 0 | 0 | 0 | 1 | 3 | 7 | 5 | 2 | 4 | 10 | 2 | 0 | 0 | 35 |
| 3.5-7.5 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 1 | 3 | 5 | 37 | 22 | 3 | 2 | 0 | 0 | 76 |
| 7.5-12.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 18 | 5 | 0 | 0 | 0 | 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 | 1 | 1 | 2 | 0 | 1 | 4 | 10 | 15 | 57 | 31 | 13 | 4 | 0 | 0 | 139 |

Class G Freq: 0.005

| 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 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 2 |
| 3.5-7.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 3 | 0 | 0 | 0 | 0 | 6 |
| 7.5-12.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 2 |
| 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 | 1 | 6 | 3 | 0 | 0 | 0 | 0 | 10 |

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 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 2 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 7 |
| 0.95-3.5 | 4 | 10 | 7 | 13 | 10 | 10 | 9 | 29 | 21 | 31 | 26 | 15 | 30 | 20 | 16 | 11 | 262 |
| 3.5-7.5 | 40 | 48 | 42 | 31 | 30 | 17 | 18 | 26 | 54 | 88 | 128 | 153 | 188 | 135 | 97 | 48 | 1143 |
| 7.5-12.5 | 8 | 17 | 28 | 14 | 5 | 4 | 11 | 5 | 19 | 111 | 72 | 48 | 63 | 96 | 77 | 19 | 597 |
| 12.5-18.5 | 2 | 2 | 6 | 9 | 1 | 0 | 0 | 1 | 2 | 11 | 3 | 0 | 1 | 0 | 1 | 0 | 39 |
| 18.5-24 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| >24 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TOTAL | 55 | 77 | 83 | 67 | 47 | 31 | 38 | 62 | 100 | 241 | 230 | 216 | 282 | 251 | 192 | 78 | 2050 |

# Table A-1 (continued)

Apr-Jun 2006

Class A Freq: 0.163

| 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 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 1 | 11 |
| 3.5-7.5 | 23 | 25 | 20 | 8 | 9 | 12 | 1 | 1 | 14 | 19 | 5 | 15 | 16 | 16 | 7 | 16 | 207 |
| 7.5-12.5 | 2 | 26 | 5 | 0 | 1 | 2 | 0 | 1 | 32 | 37 | 4 | 0 | 2 | 4 | 0 | 3 | 119 |
| 12.5-18.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 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 | 28 | 53 | 27 | 8 | 10 | 14 | 1 | 2 | 46 | 57 | 9 | 15 | 21 | 20 | 7 | 20 | 338 |

Class B Freq: 0.041

| 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 | 3 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 7 |
| 3.5-7.5 | 1 | 2 | 4 | 5 | 0 | 0 | 2 | 2 | 7 | 6 | 7 | 4 | 4 | 1 | 0 | 3 | 48 |
| 7.5-12.5 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 8 | 13 | 1 | 0 | 2 | 1 | 0 | 0 | 28 |
| 12.5-18.5 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 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 | 3 | 7 | 5 | 5 | 1 | 0 | 3 | 2 | 15 | 20 | 8 | 4 | 7 | 2 | 0 | 3 | 85 |

Class C Freq: 0.051

| 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 | 4 | 0 | 1 | 2 | 1 | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 13 |
| 3.5-7.5 | 7 | 1 | 7 | 4 | 8 | 1 | 3 | 2 | 6 | 7 | 2 | 2 | 1 | 2 | 1 | 5 | 59 |
| 7.5-12.5 | 1 | 1 | 3 | 0 | 4 | 0 | 0 | 1 | 9 | 8 | 2 | 1 | 0 | 1 | 0 | 0 | 31 |
| 12.5-18.5 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 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 | 9 | 7 | 12 | 5 | 14 | 2 | 3 | 5 | 15 | 16 | 4 | 4 | 1 | 3 | 2 | 5 | 107 |

Class D Freq: 0.428

| 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 | 19 | 23 | 13 | 14 | 3 | 5 | 2 | 5 | 4 | 12 | 8 | 8 | 4 | 9 | 23 | 20 | 172 |
| 3.5-7.5 | 77 | 37 | 12 | 21 | 69 | 26 | 12 | 12 | 80 | 52 | 21 | 34 | 9 | 12 | 17 | 31 | 522 |
| 7.5-12.5 | 21 | 23 | 4 | 4 | 19 | 6 | 3 | 1 | 33 | 54 | 4 | 7 | 7 | 0 | 0 | 2 | 188 |
| 12.5-18.5 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 7 |
| 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 | 119 | 85 | 29 | 39 | 91 | 37 | 17 | 18 | 117 | 121 | 33 | 49 | 20 | 21 | 40 | 53 | 889 |

# Table A-1 (continued)

Apr-Jun 2006

Class E Freq: 0.221

| mph | N | NNE | NE | ENE | E | ESE | SE | SSE | S | SSW | SW | WSW | W | WNW | NW | NNW | TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Calm-0.95 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 3 |
| 0.95-3.5 | 13 | 3 | 5 | 13 | 10 | 7 | 18 | 13 | 7 | 6 | 10 | 4 | 6 | 11 | 9 | 7 | 142 |
| 3.5-7.5 | 11 | 4 | 1 | 5 | 2 | 4 | 3 | 6 | 28 | 50 | 27 | 31 | 15 | 19 | 20 | 17 | 243 |
| 7.5-12.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 7 | 57 | 6 | 0 | 0 | 0 | 0 | 1 | 72 |
| 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 | 25 | 7 | 6 | 18 | 12 | 11 | 21 | 20 | 43 | 113 | 43 | 35 | 22 | 30 | 29 | 25 | 460 |

Class F Freq: 0.067

| mph | N | NNE | NE | ENE | E | ESE | SE | SSE | S | SSW | SW | WSW | W | WNW | NW | NNW | TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Calm-0.95 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 0.95-3.5 | 0 | 0 | 2 | 4 | 3 | 0 | 3 | 8 | 6 | 4 | 14 | 5 | 8 | 3 | 2 | 0 | 62 |
| 3.5-7.5 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 25 | 5 | 2 | 6 | 4 | 2 | 55 |
| 7.5-12.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 14 | 8 | 0 | 0 | 0 | 0 | 0 | 22 |
| 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 | 0 | 3 | 4 | 3 | 0 | 3 | 8 | 6 | 27 | 47 | 10 | 10 | 9 | 6 | 2 | 140 |

Class G Freq: 0.029

| 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 | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| 0.95-3.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 2 | 2 | 2 | 1 | 0 | 1 | 1 | 10 |
| 3.5-7.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 16 | 2 | 0 | 1 | 1 | 0 | 27 |
| 7.5-12.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18 | 4 | 0 | 0 | 0 | 0 | 0 | 22 |
| 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 | 1 | 0 | 27 | 23 | 4 | 1 | 1 | 2 | 1 | 60 |

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 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 5 |
| 0.95-3.5 | 37 | 35 | 23 | 32 | 18 | 13 | 24 | 29 | 17 | 24 | 34 | 20 | 23 | 23 | 36 | 29 | 417 |
| 3.5-7.5 | 120 | 69 | 45 | 43 | 88 | 43 | 21 | 23 | 135 | 150 | 103 | 93 | 47 | 57 | 50 | 74 | 1161 |
| 7.5-12.5 | 25 | 51 | 12 | 4 | 25 | 8 | 3 | 4 | 89 | 201 | 29 | 8 | 11 | 6 | 0 | 6 | 482 |
| 12.5-18.5 | 2 | 4 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 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 | 186 | 159 | 82 | 79 | 131 | 64 | 48 | 56 | 242 | 381 | 167 | 121 | 82 | 86 | 86 | 109 | 2079 |

# Table A-1 (continued)

Jul-Sep 2006

Class A Freq: 0.121

| 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 | 9 | 5 | 3 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 1 | 2 | 6 | 8 | 9 | 49 |
| 3.5-7.5 | 20 | 27 | 34 | 15 | 9 | 3 | 0 | 0 | 20 | 10 | 13 | 14 | 6 | 14 | 2 | 12 | 199 |
| 7.5-12.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 8 | 1 | 0 | 0 | 0 | 0 | 0 | 19 |
| 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 | 29 | 32 | 37 | 16 | 10 | 4 | 1 | 0 | 31 | 18 | 15 | 15 | 8 | 20 | 10 | 21 | 267 |

Class B Freq: 0.052

| 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 | 4 | 1 | 2 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 6 | 2 | 4 | 25 |
| 3.5-7.5 | 2 | 4 | 1 | 4 | 5 | 3 | 0 | 1 | 16 | 14 | 6 | 10 | 4 | 2 | 0 | 4 | 76 |
| 7.5-12.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 10 | 0 | 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 | 3 | 8 | 2 | 6 | 6 | 4 | 0 | 1 | 20 | 24 | 6 | 11 | 6 | 8 | 2 | 8 | 115 |

Class C Freq: 0.057

| 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 | 4 | 5 | 3 | 2 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 3 | 2 | 2 | 4 | 29 |
| 3.5-7.5 | 2 | 2 | 2 | 7 | 9 | 2 | 0 | 1 | 12 | 23 | 12 | 5 | 3 | 0 | 0 | 1 | 81 |
| 7.5-12.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 16 |
| 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 | 7 | 10 | 11 | 3 | 1 | 1 | 20 | 31 | 12 | 6 | 6 | 2 | 2 | 5 | 126 |

Class D 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 | 1 | 0 | 0 | 0 | 0 | 1 |
| 0.95-3.5 | 13 | 30 | 18 | 28 | 17 | 18 | 12 | 14 | 13 | 7 | 11 | 9 | 8 | 10 | 10 | 12 | 230 |
| 3.5-7.5 | 2 | 36 | 11 | 9 | 25 | 24 | 6 | 7 | 117 | 91 | 38 | 19 | 8 | 0 | 4 | 1 | 398 |
| 7.5-12.5 | 0 | 2 | 0 | 2 | 9 | 2 | 0 | 1 | 23 | 40 | 2 | 0 | 0 | 0 | 0 | 0 | 81 |
| 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 | 15 | 68 | 29 | 39 | 51 | 44 | 18 | 22 | 153 | 138 | 51 | 29 | 16 | 10 | 14 | 13 | 710 |

# Table A-1 (continued)

Jul-Sep 2006

Class E Freq: 0.287

| 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 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 5 |
| 0.95-3.5 | 3 | 10 | 5 | 19 | 12 | 19 | 21 | 35 | 26 | 7 | 16 | 19 | 15 | 12 | 7 | 13 | 239 |
| 3.5-7.5 | 3 | 14 | 5 | 6 | 7 | 1 | 3 | 11 | 78 | 89 | 90 | 26 | 9 | 6 | 2 | 4 | 354 |
| 7.5-12.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 31 | 2 | 0 | 0 | 0 | 0 | 0 | 36 |
| 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 | 6 | 24 | 10 | 25 | 20 | 20 | 24 | 46 | 107 | 128 | 109 | 45 | 24 | 19 | 10 | 17 | 634 |

Class F Freq: 0.121

| 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 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 0.95-3.5 | 0 | 1 | 0 | 3 | 0 | 0 | 4 | 5 | 21 | 9 | 43 | 29 | 8 | 2 | 0 | 1 | 126 |
| 3.5-7.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 6 | 49 | 66 | 1 | 0 | 0 | 0 | 1 | 126 |
| 7.5-12.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 1 | 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 | 1 | 0 | 3 | 0 | 0 | 5 | 8 | 27 | 72 | 110 | 30 | 8 | 2 | 0 | 2 | 268 |

Class G Freq: 0.040

| 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 | 1 | 0 | 0 | 1 |
| 0.95-3.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 8 | 23 | 14 | 3 | 0 | 1 | 0 | 50 |
| 3.5-7.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 14 | 21 | 0 | 0 | 0 | 0 | 0 | 35 |
| 7.5-12.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 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 | 1 | 24 | 44 | 14 | 3 | 1 | 1 | 0 | 88 |

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 | 1 | 0 | 1 | 0 | 0 | 3 | 1 | 1 | 0 | 2 | 1 | 0 | 10 |
| 0.95-3.5 | 27 | 54 | 32 | 56 | 33 | 40 | 39 | 54 | 62 | 31 | 94 | 74 | 41 | 38 | 30 | 43 | 748 |
| 3.5-7.5 | 29 | 83 | 53 | 41 | 55 | 33 | 9 | 23 | 249 | 290 | 246 | 75 | 30 | 22 | 8 | 23 | 1269 |
| 7.5-12.5 | 0 | 2 | 0 | 2 | 9 | 2 | 0 | 1 | 48 | 111 | 6 | 0 | 0 | 0 | 0 | 0 | 181 |
| 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 | 56 | 139 | 85 | 99 | 98 | 75 | 49 | 78 | 359 | 435 | 347 | 150 | 71 | 62 | 39 | 66 | 2208 |

# Table A-1 (continued)

Oct-Dec 2006

Class A Freq: 0.076

| 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 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 1 | 8 |
| 3.5-7.5 | 19 | 21 | 6 | 4 | 0 | 0 | 0 | 0 | 1 | 3 | 3 | 10 | 25 | 27 | 20 | 4 | 143 |
| 7.5-12.5 | 2 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 4 | 3 | 4 | 0 | 0 | 17 |
| 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 | 24 | 23 | 8 | 4 | 0 | 0 | 0 | 0 | 2 | 3 | 3 | 14 | 28 | 32 | 22 | 5 | 168 |

Class B Freq: 0.037

| 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 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 5 |
| 3.5-7.5 | 1 | 5 | 1 | 2 | 1 | 0 | 0 | 0 | 6 | 8 | 6 | 6 | 6 | 8 | 5 | 0 | 55 |
| 7.5-12.5 | 2 | 1 | 2 | 0 | 0 | 0 | 1 | 0 | 4 | 3 | 2 | 3 | 0 | 1 | 1 | 0 | 20 |
| 12.5-18.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 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 | 4 | 6 | 5 | 2 | 1 | 0 | 1 | 0 | 10 | 11 | 10 | 9 | 7 | 10 | 6 | 0 | 82 |

Class C 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 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 1 | 2 | 1 | 11 |
| 3.5-7.5 | 3 | 4 | 4 | 3 | 5 | 2 | 1 | 0 | 7 | 14 | 12 | 7 | 9 | 7 | 1 | 1 | 80 |
| 7.5-12.5 | 0 | 2 | 7 | 0 | 0 | 0 | 0 | 1 | 5 | 5 | 3 | 2 | 2 | 2 | 1 | 0 | 30 |
| 12.5-18.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 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 | 3 | 7 | 12 | 4 | 6 | 3 | 1 | 1 | 13 | 19 | 18 | 9 | 11 | 10 | 4 | 2 | 123 |

Class D Freq: 0.432

| 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 | 4 | 5 | 2 | 4 | 8 | 11 | 17 | 11 | 6 | 6 | 6 | 9 | 15 | 14 | 5 | 128 |
| 3.5-7.5 | 17 | 32 | 30 | 14 | 16 | 18 | 21 | 22 | 82 | 56 | 32 | 79 | 62 | 35 | 47 | 10 | 573 |
| 7.5-12.5 | 4 | 16 | 15 | 0 | 0 | 12 | 3 | 19 | 35 | 46 | 33 | 18 | 7 | 17 | 9 | 2 | 236 |
| 12.5-18.5 | 3 | 3 | 0 | 0 | 0 | 0 | 0 | 4 | 4 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 15 |
| 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 | 55 | 50 | 16 | 20 | 38 | 35 | 62 | 132 | 108 | 72 | 103 | 78 | 67 | 70 | 17 | 952 |

# Table A-1 (continued)

Oct-Dec 2006

Class E Freq: 0.305

| 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 | 1 | 0 | 0 | 0 | 0 | 1 |
| 0.95-3.5 | 3 | 4 | 4 | 5 | 5 | 7 | 22 | 20 | 15 | 14 | 10 | 28 | 13 | 15 | 7 | 4 | 176 |
| 3.5-7.5 | 3 | 8 | 0 | 1 | 5 | 17 | 22 | 19 | 39 | 47 | 98 | 121 | 50 | 12 | 6 | 1 | 449 |
| 7.5-12.5 | 1 | 0 | 0 | 0 | 1 | 3 | 0 | 3 | 3 | 12 | 12 | 7 | 1 | 2 | 0 | 1 | 46 |
| 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 | 7 | 12 | 4 | 6 | 11 | 27 | 44 | 42 | 57 | 73 | 120 | 157 | 64 | 29 | 13 | 6 | 672 |

Class F Freq: 0.082

| 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 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 0.95-3.5 | 0 | 0 | 1 | 4 | 0 | 0 | 3 | 4 | 11 | 8 | 29 | 9 | 2 | 2 | 1 | 2 | 76 |
| 3.5-7.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 5 | 46 | 34 | 5 | 0 | 0 | 0 | 0 | 93 |
| 7.5-12.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 2 | 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 | 1 | 4 | 0 | 0 | 4 | 7 | 16 | 63 | 65 | 14 | 2 | 2 | 1 | 2 | 181 |

Class G Freq: 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 | 2 | 2 | 5 | 0 | 0 | 0 | 0 | 0 | 9 |
| 3.5-7.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 7 | 0 | 0 | 0 | 0 | 0 | 15 |
| 7.5-12.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 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 | 2 | 12 | 12 | 0 | 0 | 0 | 0 | 0 | 26 |

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 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 2 |
| 0.95-3.5 | 12 | 10 | 13 | 12 | 10 | 16 | 36 | 41 | 39 | 30 | 52 | 43 | 25 | 35 | 26 | 13 | 413 |
| 3.5-7.5 | 43 | 70 | 41 | 24 | 27 | 37 | 44 | 44 | 140 | 182 | 192 | 228 | 152 | 89 | 79 | 16 | 1408 |
| 7.5-12.5 | 9 | 20 | 26 | 0 | 1 | 15 | 4 | 23 | 48 | 77 | 52 | 34 | 13 | 26 | 11 | 3 | 362 |
| 12.5-18.5 | 3 | 3 | 0 | 0 | 0 | 0 | 0 | 4 | 5 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 19 |
| 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 | 67 | 103 | 80 | 36 | 38 | 68 | 85 | 112 | 232 | 289 | 300 | 306 | 190 | 150 | 116 | 32 | 2204 |

# Table A-1 (continued)

Jan-Dec 2006

Class A Freq: 0.119

| 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 | 15 | 8 | 7 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 1 | 5 | 7 | 10 | 12 | 71 |
| 3.5-7.5 | 85 | 95 | 78 | 30 | 23 | 17 | 2 | 1 | 35 | 32 | 22 | 44 | 57 | 93 | 57 | 50 | 721 |
| 7.5-12.5 | 4 | 27 | 7 | 0 | 1 | 2 | 0 | 1 | 43 | 49 | 6 | 5 | 17 | 39 | 14 | 4 | 219 |
| 12.5-18.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 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 | 104 | 130 | 92 | 31 | 25 | 20 | 3 | 2 | 79 | 82 | 30 | 50 | 79 | 139 | 81 | 66 | 1013 |

Class B Freq: 0.043

| 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 | 9 | 4 | 2 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 4 | 7 | 2 | 5 | 40 |
| 3.5-7.5 | 4 | 13 | 11 | 15 | 11 | 4 | 4 | 3 | 29 | 28 | 22 | 26 | 22 | 17 | 6 | 9 | 224 |
| 7.5-12.5 | 5 | 2 | 5 | 1 | 1 | 0 | 1 | 0 | 16 | 30 | 5 | 6 | 9 | 9 | 6 | 0 | 96 |
| 12.5-18.5 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 1 | 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 | 12 | 25 | 20 | 19 | 13 | 5 | 6 | 3 | 45 | 59 | 29 | 33 | 35 | 33 | 15 | 14 | 366 |

Class C 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 | 2 | 9 | 8 | 8 | 7 | 3 | 1 | 2 | 0 | 0 | 2 | 2 | 3 | 3 | 7 | 7 | 64 |
| 3.5-7.5 | 16 | 8 | 15 | 15 | 27 | 6 | 5 | 4 | 27 | 48 | 32 | 19 | 23 | 16 | 5 | 11 | 277 |
| 7.5-12.5 | 1 | 3 | 14 | 3 | 4 | 0 | 0 | 2 | 22 | 30 | 11 | 7 | 5 | 5 | 10 | 2 | 119 |
| 12.5-18.5 | 2 | 1 | 5 | 5 | 0 | 0 | 0 | 0 | 1 | 2 | 2 | 0 | 0 | 0 | 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 | 21 | 21 | 42 | 31 | 38 | 9 | 6 | 8 | 50 | 80 | 47 | 28 | 31 | 24 | 22 | 20 | 478 |

Class D Freq: 0.409

| 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 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 2 |
| 0.95-3.5 | 41 | 61 | 37 | 50 | 29 | 34 | 29 | 38 | 32 | 31 | 30 | 26 | 32 | 44 | 57 | 43 | 614 |
| 3.5-7.5 | 107 | 123 | 69 | 64 | 118 | 79 | 49 | 52 | 303 | 230 | 125 | 178 | 179 | 113 | 124 | 64 | 1977 |
| 7.5-12.5 | 31 | 57 | 40 | 16 | 33 | 24 | 15 | 24 | 108 | 199 | 64 | 45 | 52 | 69 | 58 | 20 | 855 |
| 12.5-18.5 | 5 | 7 | 3 | 2 | 1 | 0 | 0 | 5 | 6 | 12 | 2 | 0 | 1 | 0 | 0 | 0 | 44 |
| 18.5-24 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| >24 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TOTAL | 184 | 248 | 149 | 132 | 182 | 137 | 93 | 119 | 451 | 472 | 221 | 250 | 264 | 226 | 239 | 127 | 3494 |

# Table A-1 (continued)

Jan-Dec 2006

Class E Freq: 0.267

| mph | N | NNE | NE | ENE | E | ESE | SE | SSE | S | SSW | SW | WSW | W | WNW | NW | NNW | TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Calm-0.95 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 3 | 1 | 2 | 1 | 1 | 1 | 2 | 0 | 15 |
| 0.95-3.5 | 19 | 21 | 15 | 41 | 30 | 40 | 65 | 92 | 58 | 46 | 54 | 59 | 43 | 46 | 27 | 25 | 681 |
| 3.5-7.5 | 19 | 31 | 7 | 14 | 19 | 24 | 32 | 49 | 170 | 234 | 259 | 244 | 131 | 55 | 37 | 24 | 1349 |
| 7.5-12.5 | 1 | 1 | 0 | 0 | 1 | 3 | 2 | 6 | 15 | 130 | 38 | 22 | 4 | 6 | 0 | 2 | 231 |
| 12.5-18.5 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 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 | 41 | 53 | 22 | 56 | 51 | 67 | 99 | 148 | 246 | 412 | 353 | 326 | 179 | 108 | 66 | 51 | 2278 |

Class F Freq: 0.085

| mph | N | NNE | NE | ENE | E | ESE | SE | SSE | S | SSW | SW | WSW | W | WNW | NW | NNW | TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Calm-0.95 | 1 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| 0.95-3.5 | 0 | 1 | 4 | 11 | 3 | 0 | 11 | 20 | 45 | 26 | 88 | 47 | 28 | 9 | 3 | 3 | 299 |
| 3.5-7.5 | 1 | 0 | 1 | 1 | 2 | 0 | 0 | 7 | 14 | 109 | 162 | 33 | 5 | 8 | 4 | 3 | 350 |
| 7.5-12.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 40 | 29 | 5 | 0 | 0 | 0 | 0 | 74 |
| 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 | 1 | 5 | 12 | 5 | 0 | 13 | 27 | 59 | 177 | 279 | 85 | 33 | 17 | 7 | 6 | 728 |

Class G Freq: 0.022

| 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 | 1 | 0 | 0 | 1 | 0 | 0 | 2 |
| 0.95-3.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 3 | 13 | 31 | 16 | 4 | 0 | 2 | 1 | 71 |
| 3.5-7.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 29 | 47 | 5 | 0 | 1 | 1 | 0 | 83 |
| 7.5-12.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 22 | 6 | 0 | 0 | 0 | 0 | 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 | 0 | 0 | 0 | 0 | 0 | 1 | 3 | 64 | 85 | 21 | 4 | 2 | 3 | 1 | 184 |

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 | 3 | 0 | 0 | 0 | 2 | 0 | 2 | 1 | 3 | 3 | 3 | 2 | 1 | 2 | 2 | 0 | 24 |
| 0.95-3.5 | 80 | 109 | 75 | 113 | 71 | 79 | 108 | 153 | 139 | 116 | 206 | 152 | 119 | 116 | 108 | 96 | 1840 |
| 3.5-7.5 | 232 | 270 | 181 | 139 | 200 | 130 | 92 | 116 | 578 | 710 | 669 | 549 | 417 | 303 | 234 | 161 | 4981 |
| 7.5-12.5 | 42 | 90 | 66 | 20 | 40 | 29 | 18 | 33 | 204 | 500 | 159 | 90 | 87 | 128 | 88 | 28 | 1622 |
| 12.5-18.5 | 7 | 9 | 8 | 9 | 1 | 0 | 0 | 5 | 7 | 17 | 7 | 0 | 1 | 0 | 1 | 0 | 72 |
| 18.5-24 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| >24 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TOTAL | 364 | 478 | 330 | 281 | 314 | 238 | 220 | 308 | 933 | 1346 | 1044 | 793 | 625 | 549 | 433 | 285 | 8541 |

# Table A-2
## Joint Frequency Distribution of Wind Directions and Speeds
## For the 220-ft level of the 220-ft Tower

Jan-Mar 2006

Class A Freq: 0.062

| 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 | 1 | 5 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 12 |
| 7.5-12.5 | 1 | 4 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 3 | 8 | 3 | 1 | 22 |
| 12.5-18.5 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 4 | 7 | 1 | 4 | 18 |
| 18.5-24 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 9 | 2 | 0 | 13 |
| >24 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 4 | 2 | 0 | 7 |
| TOTAL | 3 | 9 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 3 | 9 | 28 | 10 | 7 | 72 |

Class B 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 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 6 |
| 7.5-12.5 | 1 | 0 | 2 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 3 | 3 | 2 | 1 | 1 | 0 | 16 |
| 12.5-18.5 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 2 | 3 | 5 | 3 | 0 | 1 | 17 |
| 18.5-24 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 2 | 2 | 0 | 0 | 9 |
| >24 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 2 | 8 |
| TOTAL | 1 | 0 | 4 | 3 | 2 | 2 | 2 | 0 | 0 | 3 | 6 | 8 | 9 | 9 | 3 | 4 | 56 |

Class C Freq: 0.074

| 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 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 3.5-7.5 | 1 | 0 | 2 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 2 | 1 | 0 | 9 |
| 7.5-12.5 | 0 | 0 | 0 | 1 | 0 | 2 | 0 | 0 | 1 | 3 | 1 | 3 | 1 | 1 | 1 | 1 | 15 |
| 12.5-18.5 | 3 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 5 | 3 | 7 | 5 | 1 | 1 | 30 |
| 18.5-24 | 0 | 0 | 2 | 3 | 0 | 0 | 0 | 0 | 0 | 3 | 2 | 3 | 1 | 1 | 1 | 1 | 17 |
| >24 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 2 | 5 | 12 |
| TOTAL | 4 | 1 | 6 | 8 | 1 | 3 | 0 | 0 | 1 | 10 | 11 | 9 | 9 | 9 | 6 | 8 | 86 |

Class D Freq: 0.480

| 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 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 7 |
| 3.5-7.5 | 1 | 1 | 3 | 2 | 1 | 0 | 1 | 0 | 0 | 1 | 3 | 1 | 3 | 4 | 1 | 0 | 22 |
| 7.5-12.5 | 4 | 4 | 7 | 3 | 1 | 0 | 6 | 4 | 3 | 10 | 6 | 7 | 10 | 9 | 3 | 11 | 88 |
| 12.5-18.5 | 6 | 6 | 10 | 3 | 1 | 4 | 0 | 3 | 1 | 25 | 27 | 41 | 22 | 26 | 18 | 11 | 204 |
| 18.5-24 | 0 | 6 | 10 | 10 | 3 | 3 | 5 | 2 | 4 | 14 | 9 | 15 | 15 | 25 | 13 | 3 | 137 |
| >24 | 7 | 5 | 0 | 5 | 4 | 0 | 1 | 4 | 3 | 4 | 2 | 1 | 9 | 11 | 24 | 20 | 100 |
| TOTAL | 18 | 22 | 31 | 23 | 11 | 7 | 14 | 14 | 11 | 54 | 47 | 65 | 59 | 75 | 62 | 45 | 558 |

# Table A-2 (continued)

Jan-Mar 2006

Class E Freq: 0.265

| 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 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 3.5-7.5 | 1 | 0 | 0 | 0 | 1 | 0 | 6 | 2 | 0 | 0 | 1 | 3 | 2 | 2 | 3 | 1 | 22 |
| 7.5-12.5 | 0 | 1 | 0 | 0 | 0 | 0 | 2 | 2 | 4 | 8 | 6 | 15 | 15 | 8 | 2 | 2 | 65 |
| 12.5-18.5 | 0 | 0 | 0 | 0 | 3 | 1 | 3 | 9 | 13 | 20 | 43 | 21 | 29 | 4 | 2 | 0 | 148 |
| 18.5-24 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 11 | 16 | 6 | 19 | 2 | 2 | 0 | 59 |
| >24 | 0 | 0 | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 2 | 5 | 0 | 0 | 0 | 0 | 10 |
| TOTAL | 1 | 1 | 1 | 2 | 4 | 1 | 13 | 14 | 20 | 40 | 68 | 50 | 65 | 16 | 9 | 3 | 308 |

Class F Freq: 0.067

| 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 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 3.5-7.5 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 2 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 6 |
| 7.5-12.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 6 | 3 | 2 | 7 | 5 | 1 | 1 | 1 | 27 |
| 12.5-18.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 3 | 5 | 9 | 1 | 1 | 0 | 21 |
| 18.5-24 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13 | 4 | 0 | 0 | 0 | 0 | 17 |
| >24 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 5 |
| TOTAL | 2 | 0 | 0 | 0 | 0 | 1 | 0 | 5 | 8 | 4 | 23 | 16 | 14 | 2 | 2 | 1 | 78 |

Class G Freq: 0.004

| 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 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 3.5-7.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 7.5-12.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 |
| 12.5-18.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 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 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 3 | 0 | 0 | 5 |

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 | 2 | 1 | 3 | 2 | 1 | 0 | 1 | 1 | 1 | 2 | 0 | 0 | 0 | 0 | 3 | 0 | 17 |
| 3.5-7.5 | 4 | 6 | 7 | 2 | 5 | 2 | 8 | 4 | 2 | 2 | 6 | 5 | 5 | 9 | 7 | 4 | 78 |
| 7.5-12.5 | 6 | 9 | 9 | 4 | 1 | 5 | 9 | 7 | 14 | 24 | 18 | 36 | 36 | 29 | 11 | 16 | 234 |
| 12.5-18.5 | 10 | 6 | 12 | 3 | 5 | 5 | 3 | 14 | 14 | 50 | 80 | 74 | 76 | 48 | 23 | 17 | 440 |
| 18.5-24 | 0 | 6 | 12 | 14 | 3 | 3 | 5 | 3 | 6 | 30 | 40 | 31 | 38 | 39 | 18 | 4 | 252 |
| >24 | 7 | 5 | 0 | 11 | 4 | 0 | 3 | 4 | 3 | 4 | 11 | 6 | 10 | 17 | 30 | 27 | 142 |
| TOTAL | 29 | 33 | 43 | 36 | 19 | 15 | 29 | 33 | 40 | 112 | 155 | 152 | 165 | 142 | 92 | 68 | 1163 |

## Table A-2 (continued)

Apr-Jun 2006

Class A Freq: 0.170

| 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 | 3 | 10 | 6 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 24 |
| 7.5-12.5 | 12 | 8 | 5 | 12 | 8 | 4 | 5 | 0 | 4 | 8 | 8 | 6 | 4 | 1 | 3 | 2 | 90 |
| 12.5-18.5 | 9 | 14 | 8 | 3 | 1 | 2 | 4 | 1 | 6 | 35 | 14 | 3 | 6 | 5 | 0 | 2 | 113 |
| 18.5-24 | 6 | 12 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 12 | 4 | 0 | 5 | 12 | 6 | 4 | 64 |
| >24 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 3 | 9 |
| TOTAL | 32 | 44 | 19 | 18 | 9 | 6 | 9 | 1 | 13 | 55 | 26 | 9 | 15 | 21 | 12 | 11 | 300 |

Class B Freq: 0.040

| 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 | 1 | 2 | 4 | 2 | 1 | 0 | 0 | 0 | 1 | 1 | 3 | 0 | 1 | 1 | 0 | 2 | 19 |
| 7.5-12.5 | 0 | 0 | 1 | 2 | 1 | 0 | 0 | 1 | 2 | 0 | 1 | 3 | 2 | 1 | 1 | 0 | 15 |
| 12.5-18.5 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13 | 5 | 3 | 2 | 1 | 1 | 0 | 27 |
| 18.5-24 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 5 | 1 | 0 | 0 | 0 | 0 | 0 | 8 |
| >24 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| TOTAL | 3 | 5 | 5 | 4 | 2 | 0 | 0 | 2 | 3 | 19 | 10 | 6 | 5 | 3 | 2 | 2 | 71 |

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 | 0 | 5 | 4 | 1 | 3 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 17 |
| 7.5-12.5 | 0 | 0 | 0 | 1 | 1 | 2 | 2 | 3 | 1 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 13 |
| 12.5-18.5 | 0 | 0 | 2 | 1 | 1 | 0 | 1 | 0 | 1 | 17 | 5 | 0 | 1 | 0 | 0 | 0 | 29 |
| 18.5-24 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 2 | 0 | 0 | 2 | 1 | 0 | 3 | 11 |
| >24 | 1 | 2 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 10 |
| TOTAL | 3 | 7 | 6 | 7 | 5 | 2 | 3 | 4 | 3 | 21 | 7 | 0 | 4 | 1 | 2 | 5 | 80 |

Class D Freq: 0.437

| 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 | 4 | 6 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 20 |
| 3.5-7.5 | 8 | 14 | 13 | 15 | 7 | 1 | 2 | 0 | 1 | 2 | 4 | 5 | 2 | 2 | 2 | 6 | 84 |
| 7.5-12.5 | 18 | 12 | 12 | 9 | 11 | 28 | 9 | 8 | 15 | 20 | 17 | 6 | 1 | 5 | 9 | 9 | 189 |
| 12.5-18.5 | 35 | 15 | 3 | 5 | 8 | 28 | 1 | 3 | 2 | 69 | 32 | 12 | 22 | 3 | 5 | 11 | 254 |
| 18.5-24 | 34 | 13 | 5 | 1 | 1 | 17 | 0 | 1 | 1 | 34 | 16 | 3 | 15 | 2 | 1 | 10 | 154 |
| >24 | 15 | 30 | 0 | 1 | 6 | 0 | 0 | 0 | 1 | 3 | 1 | 0 | 0 | 1 | 0 | 13 | 71 |
| TOTAL | 112 | 88 | 39 | 34 | 34 | 74 | 12 | 12 | 20 | 128 | 70 | 27 | 41 | 13 | 18 | 50 | 772 |

# Table A-2 (continued)

Apr-Jun 2006

Class E Freq: 0.218

| 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 | 2 | 1 | 3 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 10 |
| 3.5-7.5 | 2 | 3 | 5 | 4 | 6 | 4 | 6 | 2 | 4 | 3 | 3 | 4 | 2 | 0 | 0 | 2 | 50 |
| 7.5-12.5 | 7 | 5 | 1 | 4 | 2 | 6 | 3 | 6 | 7 | 4 | 7 | 6 | 3 | 3 | 6 | 2 | 72 |
| 12.5-18.5 | 7 | 3 | 0 | 4 | 1 | 1 | 1 | 9 | 6 | 14 | 29 | 11 | 16 | 10 | 4 | 13 | 129 |
| 18.5-24 | 9 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 31 | 29 | 1 | 4 | 6 | 8 | 15 | 106 |
| >24 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 4 | 0 | 0 | 0 | 0 | 5 | 18 |
| TOTAL | 28 | 15 | 7 | 15 | 11 | 11 | 10 | 17 | 18 | 59 | 72 | 22 | 26 | 19 | 18 | 37 | 385 |

Class F Freq: 0.059

| 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 | 1 | 1 | 1 | 1 | 4 | 1 | 0 | 1 | 2 | 1 | 0 | 0 | 0 | 14 |
| 3.5-7.5 | 0 | 0 | 0 | 0 | 3 | 1 | 2 | 2 | 0 | 3 | 0 | 0 | 1 | 1 | 0 | 1 | 14 |
| 7.5-12.5 | 0 | 0 | 0 | 0 | 0 | 1 | 5 | 5 | 0 | 0 | 0 | 2 | 2 | 6 | 1 | 2 | 24 |
| 12.5-18.5 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 3 | 3 | 9 | 1 | 2 | 23 |
| 18.5-24 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 8 | 2 | 0 | 3 | 2 | 4 | 22 |
| >24 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 1 | 8 |
| TOTAL | 2 | 0 | 1 | 1 | 4 | 3 | 8 | 11 | 1 | 7 | 18 | 9 | 7 | 19 | 4 | 10 | 105 |

Class G Freq: 0.031

| 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 | 2 | 0 | 2 |
| 3.5-7.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 1 | 2 | 0 | 2 | 0 | 1 | 9 |
| 7.5-12.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12.5-18.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 7 | 8 | 3 | 0 | 0 | 20 |
| 18.5-24 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 5 | 1 | 1 | 0 | 1 | 19 |
| >24 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 3 |
| TOTAL | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 17 | 14 | 9 | 6 | 2 | 2 | 54 |

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 | 6 | 7 | 7 | 4 | 1 | 1 | 4 | 1 | 0 | 1 | 3 | 3 | 0 | 3 | 1 | 46 |
| 3.5-7.5 | 14 | 34 | 32 | 25 | 20 | 6 | 10 | 4 | 7 | 12 | 12 | 11 | 7 | 7 | 4 | 12 | 217 |
| 7.5-12.5 | 37 | 25 | 19 | 28 | 23 | 41 | 24 | 23 | 29 | 34 | 35 | 23 | 12 | 16 | 20 | 15 | 404 |
| 12.5-18.5 | 52 | 33 | 14 | 13 | 11 | 31 | 7 | 13 | 15 | 150 | 89 | 39 | 58 | 31 | 11 | 28 | 595 |
| 18.5-24 | 53 | 28 | 5 | 1 | 1 | 17 | 0 | 3 | 5 | 86 | 68 | 11 | 27 | 25 | 17 | 37 | 384 |
| >24 | 21 | 33 | 0 | 5 | 6 | 0 | 0 | 0 | 1 | 10 | 15 | 0 | 0 | 3 | 3 | 24 | 121 |
| TOTAL | 181 | 159 | 77 | 79 | 65 | 96 | 42 | 47 | 58 | 292 | 220 | 87 | 107 | 82 | 58 | 117 | 1767 |

# Table A-2 (continued)

Jul-Sep 2006

Class A Freq: 0.121

| 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 | 7 | 11 | 18 | 7 | 2 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 2 | 3 | 2 | 3 | 58 |
| 7.5-12.5 | 18 | 3 | 6 | 15 | 5 | 8 | 4 | 1 | 0 | 15 | 6 | 5 | 8 | 7 | 8 | 7 | 116 |
| 12.5-18.5 | 13 | 7 | 8 | 1 | 0 | 0 | 1 | 0 | 4 | 15 | 3 | 6 | 7 | 3 | 3 | 3 | 74 |
| 18.5-24 | 2 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 4 | 0 | 0 | 0 | 2 | 1 | 18 |
| >24 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| TOTAL | 40 | 26 | 32 | 23 | 8 | 8 | 5 | 1 | 4 | 34 | 14 | 13 | 17 | 13 | 15 | 14 | 267 |

Class B Freq: 0.052

| 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 | 4 | 1 | 3 | 2 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 1 | 3 | 21 |
| 7.5-12.5 | 1 | 0 | 2 | 0 | 1 | 2 | 6 | 0 | 0 | 7 | 5 | 4 | 5 | 3 | 2 | 3 | 41 |
| 12.5-18.5 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 17 | 10 | 1 | 5 | 1 | 1 | 1 | 41 |
| 18.5-24 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 4 | 0 | 0 | 0 | 1 | 1 | 10 |
| >24 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 2 |
| TOTAL | 7 | 4 | 5 | 3 | 5 | 3 | 6 | 1 | 1 | 25 | 20 | 5 | 11 | 6 | 5 | 8 | 115 |

Class C Freq: 0.057

| 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 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 4 |
| 3.5-7.5 | 1 | 3 | 2 | 2 | 0 | 2 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 2 | 1 | 16 |
| 7.5-12.5 | 2 | 2 | 2 | 5 | 2 | 7 | 2 | 1 | 0 | 3 | 10 | 5 | 3 | 3 | 1 | 0 | 48 |
| 12.5-18.5 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 21 | 13 | 3 | 5 | 2 | 0 | 1 | 46 |
| 18.5-24 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 5 | 0 | 0 | 0 | 0 | 0 | 9 |
| >24 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| TOTAL | 6 | 6 | 4 | 7 | 6 | 9 | 5 | 1 | 0 | 27 | 28 | 8 | 8 | 5 | 4 | 2 | 126 |

Class D 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 | 5 | 4 | 7 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 3 | 1 | 2 | 1 | 28 |
| 3.5-7.5 | 5 | 11 | 21 | 7 | 14 | 7 | 8 | 4 | 6 | 6 | 4 | 3 | 2 | 1 | 4 | 3 | 106 |
| 7.5-12.5 | 6 | 13 | 10 | 9 | 3 | 14 | 20 | 6 | 8 | 26 | 16 | 12 | 12 | 2 | 2 | 9 | 168 |
| 12.5-18.5 | 1 | 11 | 14 | 7 | 2 | 6 | 12 | 3 | 6 | 116 | 56 | 15 | 16 | 9 | 2 | 1 | 277 |
| 18.5-24 | 0 | 9 | 0 | 0 | 4 | 13 | 5 | 1 | 1 | 38 | 32 | 2 | 1 | 3 | 1 | 4 | 114 |
| >24 | 0 | 3 | 0 | 1 | 10 | 2 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 17 |
| TOTAL | 17 | 51 | 52 | 25 | 34 | 43 | 45 | 14 | 21 | 187 | 109 | 33 | 34 | 16 | 11 | 18 | 710 |

# Table A-2 (continued)

Jul-Sep 2006

Class E Freq: 0.287

| 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 | 0 | 2 | 1 | 2 | 1 | 1 | 0 | 0 | 3 | 0 | 2 | 0 | 1 | 0 | 1 | 17 |
| 3.5-7.5 | 5 | 4 | 6 | 5 | 9 | 6 | 7 | 4 | 3 | 4 | 2 | 0 | 1 | 5 | 1 | 1 | 63 |
| 7.5-12.5 | 14 | 4 | 3 | 6 | 10 | 11 | 11 | 11 | 10 | 19 | 1 | 9 | 0 | 6 | 6 | 9 | 130 |
| 12.5-18.5 | 5 | 10 | 1 | 2 | 5 | 1 | 3 | 16 | 31 | 28 | 54 | 24 | 63 | 21 | 9 | 7 | 280 |
| 18.5-24 | 5 | 4 | 0 | 2 | 2 | 0 | 0 | 1 | 4 | 40 | 47 | 6 | 9 | 2 | 2 | 4 | 128 |
| >24 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 6 | 0 | 0 | 0 | 0 | 1 | 16 |
| TOTAL | 33 | 23 | 12 | 16 | 28 | 19 | 22 | 32 | 48 | 101 | 110 | 41 | 73 | 35 | 18 | 23 | 634 |

Class F Freq: 0.121

| 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 | 0 | 0 | 0 | 1 | 0 | 0 | 4 | 2 | 0 | 1 | 0 | 1 | 0 | 10 |
| 3.5-7.5 | 0 | 0 | 2 | 1 | 1 | 8 | 1 | 2 | 1 | 3 | 0 | 1 | 4 | 3 | 0 | 4 | 31 |
| 7.5-12.5 | 2 | 0 | 0 | 0 | 0 | 2 | 11 | 2 | 4 | 3 | 2 | 7 | 6 | 11 | 13 | 4 | 67 |
| 12.5-18.5 | 1 | 0 | 0 | 0 | 0 | 1 | 2 | 9 | 1 | 4 | 12 | 19 | 36 | 17 | 14 | 0 | 116 |
| 18.5-24 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 30 | 9 | 0 | 0 | 0 | 0 | 41 |
| >24 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 3 |
| TOTAL | 4 | 0 | 3 | 1 | 1 | 11 | 15 | 13 | 6 | 16 | 47 | 37 | 47 | 31 | 28 | 8 | 268 |

Class G Freq: 0.040

| 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 | 2 | 1 | 1 | 0 | 2 | 0 | 2 | 2 | 1 | 1 | 1 | 0 | 1 | 17 |
| 3.5-7.5 | 4 | 1 | 0 | 0 | 1 | 2 | 2 | 1 | 1 | 1 | 2 | 2 | 1 | 1 | 3 | 2 | 24 |
| 7.5-12.5 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 4 | 2 | 11 | 2 | 2 | 0 | 26 |
| 12.5-18.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 4 | 7 | 5 | 0 | 0 | 18 |
| 18.5-24 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 2 |
| >24 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| TOTAL | 6 | 3 | 1 | 2 | 2 | 3 | 2 | 3 | 3 | 5 | 11 | 10 | 20 | 9 | 5 | 3 | 88 |

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 | 11 | 5 | 11 | 4 | 5 | 3 | 2 | 2 | 0 | 10 | 4 | 4 | 5 | 3 | 4 | 3 | 76 |
| 3.5-7.5 | 26 | 31 | 52 | 24 | 30 | 26 | 20 | 11 | 11 | 15 | 9 | 8 | 11 | 15 | 13 | 17 | 319 |
| 7.5-12.5 | 44 | 22 | 23 | 35 | 21 | 44 | 54 | 21 | 24 | 75 | 44 | 44 | 45 | 34 | 34 | 32 | 596 |
| 12.5-18.5 | 21 | 29 | 23 | 11 | 7 | 8 | 19 | 29 | 43 | 201 | 150 | 72 | 139 | 58 | 29 | 13 | 852 |
| 18.5-24 | 9 | 21 | 0 | 2 | 6 | 13 | 5 | 2 | 5 | 87 | 123 | 18 | 10 | 5 | 6 | 10 | 322 |
| >24 | 2 | 5 | 0 | 1 | 15 | 2 | 0 | 0 | 0 | 7 | 9 | 1 | 0 | 0 | 0 | 1 | 43 |
| TOTAL | 113 | 113 | 109 | 77 | 84 | 96 | 100 | 65 | 83 | 395 | 339 | 147 | 210 | 115 | 86 | 76 | 2208 |

# Table A-2 (continued)

Oct-Dec 2006

Class A Freq: 0.076

| 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 | 2 | 1 | 2 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 9 | 2 | 22 |
| 7.5-12.5 | 6 | 4 | 6 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 4 | 7 | 10 | 7 | 3 | 50 |
| 12.5-18.5 | 8 | 5 | 12 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 3 | 2 | 14 | 14 | 1 | 63 |
| 18.5-24 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 7 | 8 | 4 | 24 |
| >24 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 6 | 0 | 0 | 9 |
| TOTAL | 18 | 13 | 19 | 3 | 2 | 1 | 0 | 0 | 0 | 2 | 3 | 7 | 13 | 39 | 38 | 10 | 168 |

Class B Freq: 0.037

| 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 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 1 | 7 |
| 7.5-12.5 | 0 | 1 | 3 | 1 | 0 | 1 | 0 | 0 | 0 | 6 | 1 | 4 | 4 | 4 | 4 | 1 | 30 |
| 12.5-18.5 | 0 | 0 | 2 | 1 | 1 | 0 | 0 | 1 | 1 | 6 | 8 | 3 | 1 | 2 | 3 | 0 | 29 |
| 18.5-24 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 1 | 0 | 0 | 6 |
| >24 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 1 | 2 | 1 | 10 |
| TOTAL | 2 | 2 | 8 | 3 | 1 | 1 | 0 | 1 | 1 | 12 | 11 | 10 | 8 | 10 | 9 | 3 | 82 |

Class C 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 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 2 |
| 3.5-7.5 | 0 | 0 | 1 | 3 | 1 | 1 | 0 | 0 | 0 | 2 | 4 | 2 | 0 | 1 | 1 | 0 | 16 |
| 7.5-12.5 | 0 | 0 | 3 | 2 | 0 | 1 | 2 | 0 | 0 | 6 | 4 | 6 | 1 | 4 | 1 | 1 | 31 |
| 12.5-18.5 | 1 | 1 | 5 | 1 | 2 | 1 | 0 | 2 | 2 | 11 | 11 | 7 | 1 | 5 | 2 | 0 | 52 |
| 18.5-24 | 0 | 1 | 2 | 3 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 3 | 1 | 0 | 14 |
| >24 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 2 | 0 | 2 | 1 | 0 | 8 |
| TOTAL | 2 | 3 | 12 | 9 | 5 | 3 | 2 | 2 | 2 | 20 | 19 | 17 | 4 | 16 | 6 | 1 | 123 |

Class D Freq: 0.432

| 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 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 5 |
| 3.5-7.5 | 0 | 4 | 4 | 4 | 4 | 4 | 5 | 2 | 3 | 5 | 9 | 3 | 1 | 1 | 3 | 0 | 52 |
| 7.5-12.5 | 5 | 9 | 23 | 8 | 0 | 4 | 11 | 18 | 14 | 26 | 14 | 15 | 11 | 8 | 12 | 12 | 190 |
| 12.5-18.5 | 7 | 10 | 21 | 10 | 10 | 4 | 11 | 12 | 10 | 88 | 39 | 26 | 43 | 23 | 21 | 20 | 355 |
| 18.5-24 | 9 | 1 | 9 | 15 | 4 | 4 | 16 | 13 | 4 | 24 | 40 | 19 | 29 | 33 | 22 | 8 | 250 |
| >24 | 10 | 5 | 1 | 5 | 0 | 4 | 6 | 5 | 7 | 5 | 2 | 3 | 5 | 11 | 22 | 9 | 100 |
| TOTAL | 33 | 29 | 58 | 42 | 18 | 21 | 49 | 50 | 38 | 148 | 105 | 66 | 89 | 76 | 80 | 50 | 952 |

# Table A-2 (continued)

Oct-Dec 2006

Class E Freq: 0.305

| 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 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 3.5-7.5 | 1 | 3 | 4 | 4 | 3 | 2 | 3 | 2 | 1 | 2 | 5 | 1 | 5 | 6 | 4 | 2 | 48 |
| 7.5-12.5 | 2 | 2 | 3 | 2 | 4 | 2 | 7 | 15 | 17 | 14 | 11 | 5 | 12 | 15 | 12 | 5 | 128 |
| 12.5-18.5 | 3 | 4 | 1 | 1 | 3 | 3 | 21 | 23 | 14 | 33 | 42 | 38 | 71 | 56 | 16 | 12 | 341 |
| 18.5-24 | 1 | 2 | 0 | 0 | 3 | 2 | 5 | 3 | 1 | 9 | 33 | 22 | 37 | 14 | 2 | 3 | 137 |
| >24 | 2 | 0 | 0 | 0 | 2 | 0 | 4 | 1 | 1 | 0 | 2 | 0 | 1 | 2 | 0 | 0 | 15 |
| TOTAL | 10 | 12 | 8 | 7 | 15 | 9 | 40 | 44 | 34 | 59 | 93 | 66 | 126 | 93 | 34 | 22 | 672 |

Class F Freq: 0.082

| mph | N | NNE | NE | ENE | E | ESE | SE | SSE | S | SSW | SW | WSW | W | WNW | NW | NNW | TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Calm-0.95 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 0.95-3.5 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 3.5-7.5 | 2 | 1 | 1 | 0 | 0 | 2 | 3 | 1 | 3 | 2 | 0 | 1 | 0 | 1 | 1 | 1 | 19 |
| 7.5-12.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 5 | 8 | 6 | 5 | 1 | 16 | 13 | 1 | 60 |
| 12.5-18.5 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 5 | 4 | 19 | 24 | 11 | 12 | 1 | 0 | 79 |
| 18.5-24 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 6 | 2 | 1 | 0 | 0 | 0 | 12 |
| >24 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 1 | 0 | 0 | 0 | 0 | 6 |
| TOTAL | 4 | 1 | 2 | 1 | 1 | 3 | 3 | 9 | 14 | 15 | 36 | 33 | 13 | 29 | 15 | 2 | 181 |

Class G Freq: 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 | 1 | 0 | 0 | 0 | 0 | 2 |
| 3.5-7.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 3 |
| 7.5-12.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 5 | 3 | 3 | 3 | 0 | 0 | 16 |
| 12.5-18.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 3 |
| 18.5-24 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| >24 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| TOTAL | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 2 | 8 | 4 | 3 | 5 | 1 | 0 | 26 |

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 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 0.95-3.5 | 4 | 1 | 0 | 1 | 1 | 2 | 0 | 0 | 2 | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 16 |
| 3.5-7.5 | 5 | 10 | 13 | 14 | 9 | 10 | 11 | 6 | 7 | 12 | 18 | 7 | 7 | 13 | 19 | 6 | 167 |
| 7.5-12.5 | 13 | 16 | 38 | 13 | 5 | 8 | 20 | 38 | 37 | 62 | 42 | 42 | 39 | 60 | 49 | 23 | 505 |
| 12.5-18.5 | 20 | 20 | 41 | 14 | 16 | 8 | 32 | 40 | 32 | 143 | 122 | 101 | 129 | 114 | 57 | 33 | 922 |
| 18.5-24 | 11 | 6 | 12 | 18 | 9 | 6 | 21 | 17 | 5 | 34 | 82 | 43 | 74 | 58 | 33 | 15 | 444 |
| >24 | 16 | 7 | 2 | 5 | 2 | 4 | 10 | 6 | 8 | 6 | 10 | 9 | 7 | 22 | 25 | 10 | 149 |
| TOTAL | 69 | 60 | 107 | 65 | 42 | 38 | 94 | 107 | 91 | 258 | 275 | 203 | 256 | 268 | 183 | 88 | 2204 |

# Table A-2 (continued)

Jan-Dec 2006

Class A Freq: 0.110

| 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 | 13 | 28 | 26 | 12 | 4 | 1 | 0 | 0 | 0 | 0 | 1 | 2 | 2 | 6 | 14 | 7 | 116 |
| 7.5-12.5 | 37 | 19 | 17 | 27 | 14 | 13 | 9 | 1 | 4 | 24 | 15 | 16 | 22 | 26 | 21 | 13 | 278 |
| 12.5-18.5 | 31 | 26 | 28 | 5 | 1 | 2 | 5 | 1 | 10 | 51 | 19 | 13 | 19 | 29 | 18 | 10 | 268 |
| 18.5-24 | 8 | 19 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 16 | 8 | 1 | 9 | 28 | 18 | 9 | 119 |
| >24 | 4 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 12 | 4 | 3 | 26 |
| TOTAL | 93 | 92 | 71 | 44 | 20 | 16 | 14 | 2 | 17 | 91 | 43 | 32 | 54 | 101 | 75 | 42 | 807 |

Class B Freq: 0.044

| 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 | 5 | 3 | 10 | 5 | 5 | 1 | 1 | 0 | 1 | 1 | 4 | 0 | 3 | 6 | 1 | 7 | 53 |
| 7.5-12.5 | 2 | 1 | 8 | 3 | 2 | 5 | 7 | 1 | 2 | 13 | 10 | 14 | 13 | 9 | 8 | 4 | 102 |
| 12.5-18.5 | 2 | 2 | 3 | 2 | 2 | 0 | 0 | 2 | 2 | 37 | 25 | 10 | 13 | 7 | 5 | 2 | 114 |
| 18.5-24 | 1 | 3 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 8 | 7 | 2 | 4 | 3 | 1 | 1 | 33 |
| >24 | 3 | 2 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 3 | 0 | 3 | 4 | 3 | 22 |
| TOTAL | 13 | 11 | 22 | 13 | 10 | 6 | 8 | 4 | 5 | 59 | 47 | 29 | 33 | 28 | 19 | 17 | 324 |

Class C Freq: 0.057

| 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 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 9 |
| 3.5-7.5 | 2 | 8 | 9 | 6 | 5 | 4 | 2 | 0 | 1 | 3 | 6 | 2 | 1 | 3 | 5 | 1 | 58 |
| 7.5-12.5 | 2 | 2 | 5 | 9 | 3 | 12 | 6 | 4 | 2 | 14 | 16 | 14 | 5 | 8 | 3 | 2 | 107 |
| 12.5-18.5 | 4 | 1 | 8 | 2 | 3 | 1 | 2 | 2 | 3 | 53 | 34 | 13 | 14 | 12 | 3 | 2 | 157 |
| 18.5-24 | 3 | 2 | 4 | 6 | 2 | 0 | 0 | 1 | 0 | 7 | 7 | 3 | 5 | 5 | 2 | 4 | 51 |
| >24 | 1 | 3 | 1 | 7 | 3 | 0 | 0 | 0 | 0 | 1 | 2 | 2 | 0 | 2 | 4 | 7 | 33 |
| TOTAL | 15 | 17 | 28 | 31 | 17 | 17 | 10 | 7 | 6 | 78 | 65 | 34 | 25 | 31 | 18 | 16 | 415 |

Class D Freq: 0.408

| 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 | 9 | 8 | 14 | 4 | 3 | 2 | 1 | 1 | 0 | 1 | 1 | 2 | 4 | 1 | 6 | 3 | 60 |
| 3.5-7.5 | 14 | 30 | 41 | 28 | 26 | 12 | 16 | 6 | 10 | 14 | 20 | 12 | 8 | 8 | 10 | 9 | 264 |
| 7.5-12.5 | 33 | 38 | 52 | 29 | 15 | 46 | 46 | 36 | 40 | 82 | 53 | 40 | 34 | 24 | 26 | 41 | 635 |
| 12.5-18.5 | 49 | 42 | 48 | 25 | 21 | 42 | 24 | 21 | 19 | 298 | 154 | 94 | 103 | 61 | 46 | 43 | 1090 |
| 18.5-24 | 43 | 29 | 24 | 26 | 12 | 37 | 26 | 17 | 10 | 110 | 97 | 39 | 60 | 63 | 37 | 25 | 655 |
| >24 | 32 | 43 | 1 | 12 | 20 | 6 | 7 | 9 | 11 | 12 | 6 | 4 | 14 | 23 | 46 | 42 | 288 |
| TOTAL | 180 | 190 | 180 | 124 | 97 | 145 | 120 | 90 | 90 | 517 | 331 | 191 | 223 | 180 | 171 | 163 | 2992 |

# Table A-2 (continued)

Jan-Dec 2006

Class E Freq: 0.272

| 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 | 3 | 4 | 5 | 4 | 1 | 1 | 0 | 1 | 5 | 0 | 2 | 1 | 1 | 0 | 1 | 34 |
| 3.5-7.5 | 9 | 10 | 15 | 13 | 19 | 12 | 22 | 10 | 8 | 9 | 11 | 8 | 10 | 13 | 8 | 6 | 183 |
| 7.5-12.5 | 23 | 12 | 7 | 12 | 16 | 19 | 23 | 34 | 38 | 45 | 25 | 35 | 30 | 32 | 26 | 18 | 395 |
| 12.5-18.5 | 15 | 17 | 2 | 7 | 12 | 6 | 28 | 57 | 64 | 95 | 168 | 94 | 179 | 91 | 31 | 32 | 898 |
| 18.5-24 | 15 | 8 | 0 | 2 | 5 | 2 | 5 | 5 | 8 | 91 | 125 | 35 | 69 | 24 | 14 | 22 | 430 |
| >24 | 5 | 1 | 0 | 1 | 2 | 0 | 6 | 1 | 1 | 14 | 14 | 5 | 1 | 2 | 0 | 6 | 59 |
| TOTAL | 72 | 51 | 28 | 40 | 58 | 40 | 85 | 107 | 120 | 259 | 343 | 179 | 290 | 163 | 79 | 85 | 1999 |

Class F Freq: 0.086

| mph | N | NNE | NE | ENE | E | ESE | SE | SSE | S | SSW | SW | WSW | W | WNW | NW | NNW | TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Calm-0.95 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 0.95-3.5 | 3 | 0 | 1 | 2 | 2 | 2 | 2 | 4 | 2 | 4 | 3 | 2 | 2 | 0 | 1 | 0 | 30 |
| 3.5-7.5 | 2 | 1 | 3 | 1 | 4 | 12 | 6 | 7 | 6 | 9 | 0 | 2 | 5 | 5 | 1 | 6 | 70 |
| 7.5-12.5 | 2 | 0 | 0 | 0 | 0 | 3 | 16 | 13 | 15 | 14 | 10 | 21 | 14 | 34 | 28 | 8 | 178 |
| 12.5-18.5 | 2 | 0 | 1 | 0 | 0 | 1 | 2 | 13 | 6 | 10 | 36 | 51 | 59 | 39 | 17 | 2 | 239 |
| 18.5-24 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 5 | 57 | 17 | 1 | 3 | 2 | 4 | 92 |
| >24 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18 | 2 | 0 | 0 | 0 | 1 | 22 |
| TOTAL | 12 | 1 | 6 | 3 | 6 | 18 | 26 | 38 | 29 | 42 | 124 | 95 | 81 | 81 | 49 | 21 | 632 |

Class G Freq: 0.024

| 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 | 2 | 1 | 1 | 0 | 2 | 1 | 3 | 2 | 2 | 1 | 1 | 2 | 1 | 22 |
| 3.5-7.5 | 4 | 1 | 0 | 0 | 1 | 2 | 2 | 2 | 1 | 5 | 3 | 5 | 1 | 3 | 4 | 3 | 37 |
| 7.5-12.5 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 3 | 10 | 5 | 14 | 6 | 2 | 0 | 44 |
| 12.5-18.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 11 | 15 | 12 | 0 | 0 | 43 |
| 18.5-24 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 6 | 1 | 1 | 0 | 1 | 22 |
| >24 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 5 |
| TOTAL | 7 | 3 | 1 | 2 | 2 | 3 | 2 | 4 | 5 | 11 | 36 | 29 | 32 | 23 | 8 | 5 | 173 |

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 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 0.95-3.5 | 21 | 13 | 21 | 14 | 11 | 6 | 4 | 7 | 4 | 13 | 6 | 8 | 8 | 4 | 10 | 5 | 155 |
| 3.5-7.5 | 49 | 81 | 104 | 65 | 64 | 44 | 49 | 25 | 27 | 41 | 45 | 31 | 30 | 44 | 43 | 39 | 781 |
| 7.5-12.5 | 100 | 72 | 89 | 80 | 50 | 98 | 107 | 89 | 104 | 195 | 139 | 145 | 132 | 139 | 114 | 86 | 1739 |
| 12.5-18.5 | 103 | 88 | 90 | 41 | 39 | 52 | 61 | 96 | 104 | 544 | 441 | 286 | 402 | 251 | 120 | 91 | 2809 |
| 18.5-24 | 73 | 61 | 29 | 35 | 19 | 39 | 31 | 25 | 21 | 237 | 313 | 103 | 149 | 127 | 74 | 66 | 1402 |
| >24 | 46 | 50 | 2 | 22 | 27 | 6 | 13 | 10 | 12 | 27 | 45 | 16 | 17 | 42 | 58 | 62 | 455 |
| TOTAL | 392 | 365 | 336 | 257 | 210 | 245 | 265 | 252 | 272 | 1057 | 989 | 589 | 738 | 607 | 419 | 349 | 7342 |

## APPENDIX B

### PILGRIM NUCLEAR POWER STATION
### OFFSITE DOSE CALCULATION MANUAL

No revisions were made to the PNPS Offsite Dose Calculation Manual (ODCM) during calendar year 2006.

## APPENDIX C

### UPDATED GASEOUS EFFLUENT TABLES FOR 2002

| Activity Category | Annual Release - Ci | | Percent Change |
|---|---|---|---|
| | Original Value | Revised Value | |
| Fission & Activation Gases | 6.25E+01 | 5.33E+01 | -14.7% |
| Iodines | 1.51E-03 | 2.59E-03 | 71.9% |
| Particulates | 1.43E-03 | 2.18E-03 | 52.4% |
| Tritium | 6.90E+02 | 6.90E+02 | 0.0% |

Table 2.2-A
Pilgrim Nuclear Power Station
Radioactive Effluent Release Report
Gaseous Effluents - Summation of All Releases
January-December 2002

| RELEASE PERIOD | Jan-Mar 2002 | Apr-Jun 2002 | Jul-Sep 2002 | Oct-Dec 2002 | Jan-Dec 2002 | Est. Total Error |
|---|---|---|---|---|---|---|
| **A. FISSION AND ACTIVATION GASES** | | | | | | |
| Total Release: Ci | 9.83E+00 | 1.12E+01 | 2.53E+01 | 6.95E+00 | 5.33E+01 | ±22% |
| Average Release Rate: µCi/sec | 1.25E+00 | 1.42E+00 | 3.21E+00 | 8.82E-01 | 1.69E+00 | |
| Percent of Effluent Control Limit* | * | * | * | * | * | |
| **B. IODINE-131** | | | | | | |
| Total Iodine-131 Release: Ci | 5.35E-04 | 5.32E-04 | 8.06E-04 | 7.12E-04 | 2.59E-03 | ±20% |
| Average Release Rate: µCi/sec | 6.79E-05 | 6.75E-05 | 1.02E-04 | 9.03E-05 | 8.19E-05 | |
| Percent of Effluent Control Limit* | * | * | * | * | * | |
| **C. PARTICULATES WITH HALF-LIVES > 8 DAYS** | | | | | | |
| Total Release: Ci | 2.02E-04 | 6.74E-04 | 4.23E-04 | 8.78E-04 | 2.18E-03 | ±21% |
| Average Release Rate: µCi/sec | 2.56E-05 | 8.55E-05 | 5.36E-05 | 1.11E-04 | 6.90E-05 | |
| Percent of Effluent Control Limit* | * | * | * | * | * | |
| Gross Alpha Radioactivity: Ci | NDA | NDA | NDA | NDA | NDA | |
| **D. TRITIUM** | | | | | | |
| Total Release: Ci | 1.59E+02 | 1.25E+02 | 1.57E+02 | 2.49E+02 | 6.90E+02 | ±20% |
| Average Release Rate: µCi/sec | 2.02E+01 | 1.59E+01 | 1.99E+01 | 3.16E+01 | 2.19E+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 µCi/cc.

Table 2.2-B
Pilgrim Nuclear Power Station
Radioactive Effluent Release Report
Gaseous Effluents – Elevated Release
January-December 2002

| CONTINUOUS MODE RELEASES FROM ELEVATED RELEASE POINT | | | | | |
|---|---|---|---|---|---|
| Nuclide Released | Jan-Mar 2002 | Apr-Jun 2002 | Jul-Sep 2002 | Oct-Dec 2002 | Jan-Dec 2002 |
| **1. FISSION AND ACTIVATION GASES: Ci** | | | | | |
| Ar-41 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Kr-85 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Kr-85m | 0.00E+00 | 9.66E-02 | 0.00E+00 | 0.00E+00 | 9.66E-02 |
| Kr-87 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Kr-88 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Xe-131m | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Xe-133 | 0.00E+00 | 0.00E+00 | 2.13E-01 | 0.00E+00 | 2.13E-01 |
| Xe-133m | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Xe-135 | 2.00E-01 | 6.06E-01 | 2.33E-01 | 1.16E-01 | 1.15E+00 |
| Xe-135m | 0.00E+00 | 7.25E-01 | 0.00E+00 | 0.00E+00 | 7.25E-01 |
| Xe-137 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Xe-138 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | | | | | |
| Total for Period | 2.00E-01 | 1.43E+00 | 4.46E-01 | 1.16E-01 | 2.19E+00 |
| **2. IODINES: Ci** | | | | | |
| I-131 | 2.61E-04 | 2.06E-04 | 1.86E-04 | 1.31E-04 | 7.84E-04 |
| I-133 | 1.39E-03 | 1.04E-03 | 1.09E-03 | 7.47E-04 | 4.27E-03 |
| | | | | | |
| Total for Period | 1.65E-03 | 1.24E-03 | 1.28E-03 | 8.78E-04 | 5.05E-03 |
| **3. PARTICULATES WITH HALF-LIVES > 8 DAYS: Ci** | | | | | |
| Mn-54 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Fe-59 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Co-58 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Co-60 | 2.67E-06 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.67E-06 |
| Zn-65 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Sr-89 | 1.29E-05 | 1.80E-05 | 1.54E-05 | 7.19E-06 | 5.35E-05 |
| Sr-90 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Ru-103 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Cs-137 | 2.73E-06 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.73E-06 |
| Ba/La-140 | 1.84E-05 | 2.67E-05 | 1.11E-04 | 0.00E+00 | 1.56E-04 |
| | | | | | |
| Total for Period | 3.67E-05 | 4.47E-05 | 1.26E-04 | 7.19E-06 | 2.15E-04 |
| **4. TRITIUM: Ci** | | | | | |
| H-3 | 3.03E+00 | 4.15E+00 | 4.90E+00 | 6.02E+00 | 1.81E+01 |

Notes for Table 2.2-B:

1. N/A stands for not applicable.
2. NDA stands for No Detectable Activity.
3. LLDs for airborne radionuclides listed as NDA are as follows:
   Fission Gases: 1E-04 µCi/cc
   Iodines: 1E-12 µCi/cc
   Particulates: 1E-11 µCi/cc

Table 2.2-B (continued)
Pilgrim Nuclear Power Station
Radioactive Effluent Release Report
Gaseous Effluents – Elevated Release
January-December 2002

| BATCH MODE RELEASES FROM ELEVATED RELEASE POINT | | | | | |
|---|---|---|---|---|---|
| Nuclide Released | Jan-Mar 2002 | Apr-Jun 2002 | Jul-Sep 2002 | Oct-Dec 2002 | Jan-Dec 2002 |
| **1. FISSION AND ACTIVATION GASES: Ci** | | | | | |
| Ar-41 | N/A | N/A | N/A | N/A | N/A |
| Kr-85 | N/A | N/A | N/A | N/A | N/A |
| Kr-85m | N/A | N/A | N/A | N/A | N/A |
| Kr-87 | N/A | N/A | N/A | N/A | N/A |
| Kr-88 | N/A | N/A | N/A | N/A | N/A |
| Xe-131m | N/A | N/A | N/A | N/A | N/A |
| Xe-133 | N/A | N/A | N/A | N/A | N/A |
| Xe-133m | N/A | N/A | N/A | N/A | N/A |
| Xe-135 | N/A | N/A | N/A | N/A | N/A |
| Xe-135m | N/A | N/A | N/A | N/A | N/A |
| Xe-137 | N/A | N/A | N/A | N/A | N/A |
| Xe-138 | N/A | N/A | N/A | N/A | N/A |
| | | | | | |
| Total for period | N/A | N/A | N/A | N/A | N/A |
| **2. IODINES: Ci** | | | | | |
| I-131 | N/A | N/A | N/A | N/A | N/A |
| I-133 | N/A | N/A | N/A | N/A | N/A |
| | | | | | |
| Total for period | N/A | N/A | N/A | N/A | N/A |
| **3. PARTICULATES WITH HALF-LIVES > 8 DAYS: Ci** | | | | | |
| Mn-54 | N/A | N/A | N/A | N/A | N/A |
| Fe-59 | N/A | N/A | N/A | N/A | N/A |
| Co-58 | N/A | N/A | N/A | N/A | N/A |
| Co-60 | N/A | N/A | N/A | N/A | N/A |
| Zn-65 | N/A | N/A | N/A | N/A | N/A |
| Sr-89 | N/A | N/A | N/A | N/A | N/A |
| Sr-90 | N/A | N/A | N/A | N/A | N/A |
| Ru-103 | N/A | N/A | N/A | N/A | N/A |
| Cs-137 | N/A | N/A | N/A | N/A | N/A |
| Ba/La-140 | N/A | N/A | N/A | N/A | N/A |
| | | | | | |
| Total for period | N/A | N/A | N/A | N/A | N/A |
| **4. TRITIUM: Ci** | | | | | |
| H-3 | N/A | N/A | N/A | N/A | N/A |

Notes for Table 2.2-B:

1. N/A stands for not applicable.
2. NDA stands for No Detectable Activity.
3. LLDs for airborne radionuclides listed as NDA are as follows:
   Fission Gases: 1E-04 μCi/cc
   Iodines: 1E-12 μCi/cc
   Particulates: 1E-11 μCi/cc

Table 2.2-C
Pilgrim Nuclear Power Station
Radioactive Effluent Release Report
Gaseous Effluents – Ground-Level Release
January-December 2002

| CONTINUOUS MODE RELEASES FROM GROUND-LEVEL RELEASE POINT | | | | | |
|---|---|---|---|---|---|
| Nuclide Released | Jan-Mar 2002 | Apr-Jun 2002 | Jul-Sep 2002 | Oct-Dec 2002 | Jan-Dec 2002 |
| **1. FISSION AND ACTIVATION GASES: Ci** | | | | | |
| Ar-41 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Kr-85 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Kr-85m | 3.06E-01 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 3.06E-01 |
| Kr-87 | 0.00E+00 | 3.19E+00 | 0.00E+00 | 0.00E+00 | 3.19E+00 |
| Kr-88 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Xe-131m | 0.00E+00 | 0.00E+00 | 1.62E+01 | 0.00E+00 | 1.62E+01 |
| Xe-133 | 0.00E+00 | 4.67E-01 | 5.03E-01 | 0.00E+00 | 9.70E-01 |
| Xe-133m | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Xe-135 | 9.33E+00 | 6.11E+00 | 8.19E+00 | 6.84E+00 | 3.05E+01 |
| Xe-135m | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Xe-137 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Xe-138 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | | | | | |
| Total for period | 9.63E+00 | 9.77E+00 | 2.49E+01 | 6.84E+00 | 5.11E+01 |
| **2. IODINES: Ci** | | | | | |
| I-131 | 2.75E-04 | 3.26E-04 | 6.20E-04 | 5.81E-04 | 1.80E-03 |
| I-133 | 2.88E-03 | 3.11E-03 | 4.98E-03 | 5.35E-03 | 1.63E-02 |
| | | | | | |
| Total for period | 3.16E-03 | 3.43E-03 | 5.60E-03 | 5.93E-03 | 1.81E-02 |
| **3. PARTICULATES WITH HALF-LIVES > 8 DAYS: Ci** | | | | | |
| Mn-54 | 0.00E+00 | 0.00E+00 | 1.99E-06 | 0.00E+00 | 1.99E-06 |
| Fe-59 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Co-58 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Co-60 | 5.71E-06 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 5.71E-06 |
| Zn-65 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.61E-05 | 2.61E-05 |
| Sr-89 | 6.30E-05 | 5.66E-04 | 1.17E-04 | 9.69E-05 | 8.43E-04 |
| Sr-90 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Ru-103 | 0.00E+00 | 2.53E-06 | 1.31E-05 | 3.81E-06 | 1.94E-05 |
| Cs-137 | 3.82E-05 | 4.77E-06 | 0.00E+00 | 0.00E+00 | 4.30E-05 |
| Ba/La-140 | 5.79E-05 | 5.63E-05 | 1.64E-04 | 7.44E-04 | 1.02E-03 |
| | | | | | |
| Total for period | 1.65E-04 | 6.30E-04 | 2.97E-04 | 8.71E-04 | 1.96E-03 |
| **4. TRITIUM: Ci** | | | | | |
| H-3 | 1.56E+02 | 1.21E+02 | 1.52E+02 | 2.43E+02 | 6.72E+02 |

Notes for Table 2.2-C:

1. N/A stands for not applicable.
2. NDA stands for No Detectable Activity.
3. LLDs for airborne radionuclides listed as NDA are as follows:
   Fission Gases: 1E-04 µCi/cc
   Iodines: 1E-12 µCi/cc
   Particulates: 1E-11 µCi/cc

Table 2.2-C (continued)
Pilgrim Nuclear Power Station
Radioactive Effluent Release Report
Gaseous Effluents – Ground-Level Release
January-December 2002

| BATCH MODE RELEASES FROM GROUND-LEVEL RELEASE POINT | | | | | |
|---|---|---|---|---|---|
| Nuclide Released | Jan-Mar 2002 | Apr-Jun 2002 | Jul-Sep 2002 | Oct-Dec 2002 | Jan-Dec 2002 |
| **1. FISSION AND ACTIVATION GASES: Ci** | | | | | |
| Ar-41 | N/A | N/A | N/A | N/A | N/A |
| Kr-85 | N/A | N/A | N/A | N/A | N/A |
| Kr-85m | N/A | N/A | N/A | N/A | N/A |
| Kr-87 | N/A | N/A | N/A | N/A | N/A |
| Kr-88 | N/A | N/A | N/A | N/A | N/A |
| Xe-131m | N/A | N/A | N/A | N/A | N/A |
| Xe-133 | N/A | N/A | N/A | N/A | N/A |
| Xe-133m | N/A | N/A | N/A | N/A | N/A |
| Xe-135 | N/A | N/A | N/A | N/A | N/A |
| Xe-135m | N/A | N/A | N/A | N/A | N/A |
| Xe-137 | N/A | N/A | N/A | N/A | N/A |
| Xe-138 | N/A | N/A | N/A | N/A | N/A |
| | | | | | |
| Total for period | N/A | N/A | N/A | N/A | N/A |
| **2. IODINES: Ci** | | | | | |
| I-131 | N/A | N/A | N/A | N/A | N/A |
| I-133 | N/A | N/A | N/A | N/A | N/A |
| | | | | | |
| Total for period | N/A | N/A | N/A | N/A | N/A |
| **3. PARTICULATES WITH HALF-LIVES > 8 DAYS: Ci** | | | | | |
| Mn-54 | N/A | N/A | N/A | N/A | N/A |
| Fe-59 | N/A | N/A | N/A | N/A | N/A |
| Co-58 | N/A | N/A | N/A | N/A | N/A |
| Co-60 | N/A | N/A | N/A | N/A | N/A |
| Zn-65 | N/A | N/A | N/A | N/A | N/A |
| Sr-89 | N/A | N/A | N/A | N/A | N/A |
| Sr-90 | N/A | N/A | N/A | N/A | N/A |
| Ru-103 | N/A | N/A | N/A | N/A | N/A |
| Cs-137 | N/A | N/A | N/A | N/A | N/A |
| Ba/La-140 | N/A | N/A | N/A | N/A | N/A |
| | | | | | |
| Total for period | N/A | N/A | N/A | N/A | N/A |
| **4. TRITIUM: Ci** | | | | | |
| H-3 | N/A | N/A | N/A | N/A | N/A |

Notes for Table 2.2-C:

1. N/A stands for not applicable.
2. NDA stands for No Detectable Activity.
3. LLDs for airborne radionuclides listed as NDA are as follows:
   Fission Gases: 1E-04 µCi/cc
   Iodines: 1E-12 µCi/cc
   Particulates: 1E-11 µCi/cc

## APPENDIX D

### UPDATED GASEOUS EFFLUENT TABLES FOR 2003

| Activity Category | Annual Release - Ci | | Percent Change |
|---|---|---|---|
| | Original Value | Revised Value | |
| Fission & Activation Gases | 3.26E+01 | 4.65E+01 | 42.6% |
| Iodines | 1.62E-03 | 1.68E-03 | 3.7% |
| Particulates | 1.47E-03 | 1.59E-03 | 8.2% |
| Tritium | 4.98E+02 | 4.98E+02 | 0.0% |

Table 2.2-A
Pilgrim Nuclear Power Station
Radioactive Effluent Release Report
Gaseous Effluents - Summation of All Releases
January-December 2003

| RELEASE PERIOD | Jan-Mar 2003 | Apr-Jun 2003 | Jul-Sep 2003 | Oct-Dec 2003 | Jan-Dec 2003 | Est. Total Error |
|---|---|---|---|---|---|---|
| **A. FISSION AND ACTIVATION GASES** | | | | | | |
| Total Release: Ci | 7.97E+00 | 1.39E+01 | 1.48E+01 | 9.71E+00 | 4.65E+01 | ±22% |
| Average Release Rate: µCi/sec | 1.01E+00 | 1.77E+00 | 1.88E+00 | 1.23E+00 | 1.47E+00 | |
| Percent of Effluent Control Limit* | * | * | * | * | * | |
| **B. IODINE-131** | | | | | | |
| Total Iodine-131 Release: Ci | 6.62E-04 | 4.34E-04 | 3.42E-04 | 2.38E-04 | 1.68E-03 | ±20% |
| Average Release Rate: µCi/sec | 8.40E-05 | 5.51E-05 | 4.34E-05 | 3.02E-05 | 5.32E-05 | |
| Percent of Effluent Control Limit* | * | * | * | * | * | |
| **C. PARTICULATES WITH HALF-LIVES > 8 DAYS** | | | | | | |
| Total Release: Ci | 2.26E-04 | 9.94E-04 | 2.56E-04 | 1.09E-04 | 1.59E-03 | ±21% |
| Average Release Rate: µCi/sec | 2.86E-05 | 1.26E-04 | 3.25E-05 | 1.38E-05 | 5.03E-05 | |
| Percent of Effluent Control Limit* | * | * | * | * | * | |
| Gross Alpha Radioactivity: Ci | NDA | NDA | NDA | NDA | NDA | |
| **D. TRITIUM** | | | | | | |
| Total Release: Ci | 2.74E+02 | 7.14E+01 | 7.65E+01 | 7.65E+01 | 4.98E+02 | ±20% |
| Average Release Rate: µCi/sec | 3.47E+01 | 9.05E+00 | 9.70E+00 | 9.70E+00 | 1.58E+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 µCi/cc.

Table 2.2-B
Pilgrim Nuclear Power Station
Radioactive Effluent Release Report
Gaseous Effluents – Elevated Release
January-December 2003

| CONTINUOUS MODE RELEASES FROM ELEVATED RELEASE POINT | | | | | |
|---|---|---|---|---|---|
| Nuclide Released | Jan-Mar 2003 | Apr-Jun 2003 | Jul-Sep 2003 | Oct-Dec 2003 | Jan-Dec 2003 |
| **1. FISSION AND ACTIVATION GASES: Ci** | | | | | |
| Ar-41 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.12E-01 | 1.12E-01 |
| Kr-85 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Kr-85m | 0.00E+00 | 8.75E-01 | 1.52E+00 | 1.96E+00 | 4.35E+00 |
| Kr-87 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.78E-01 | 2.78E-01 |
| Kr-88 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Xe-131m | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Xe-133 | 4.23E-01 | 2.11E+00 | 3.37E+00 | 2.48E+00 | 8.38E+00 |
| Xe-133m | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Xe-135 | 1.58E-01 | 3.27E+00 | 1.63E-01 | 3.55E-01 | 3.94E+00 |
| Xe-135m | 0.00E+00 | 9.05E-01 | 0.00E+00 | 0.00E+00 | 9.05E-01 |
| Xe-137 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Xe-138 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | | | | | |
| Total for Period | 5.81E-01 | 7.15E+00 | 5.05E+00 | 5.19E+00 | 1.80E+01 |
| **2. IODINES: Ci** | | | | | |
| I-131 | 1.53E-04 | 1.97E-04 | 1.21E-04 | 1.38E-04 | 6.09E-04 |
| I-133 | 6.92E-04 | 9.66E-04 | 8.05E-04 | 8.97E-04 | 3.36E-03 |
| | | | | | |
| Total for Period | 8.45E-04 | 1.16E-03 | 9.26E-04 | 1.03E-03 | 3.97E-03 |
| **3. PARTICULATES WITH HALF-LIVES > 8 DAYS: Ci** | | | | | |
| Mn-54 | 0.00E+00 | 8.46E-06 | 1.97E-06 | 1.74E-06 | 1.22E-05 |
| Fe-59 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Co-58 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Co-60 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Zn-65 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Sr-89 | 9.74E-06 | 5.05E-05 | 6.98E-05 | 2.21E-05 | 1.52E-04 |
| Sr-90 | 1.47E-07 | 1.88E-06 | 4.92E-07 | 0.00E+00 | 2.52E-06 |
| Ru-103 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Cs-137 | 0.00E+00 | 1.69E-06 | 0.00E+00 | 0.00E+00 | 1.69E-06 |
| Ba/La-140 | 0.00E+00 | 0.00E+00 | 3.08E-05 | 0.00E+00 | 3.08E-05 |
| | | | | | |
| Total for Period | 9.89E-06 | 6.25E-05 | 1.03E-04 | 2.38E-05 | 1.99E-04 |
| **4. TRITIUM: Ci** | | | | | |
| H-3 | 1.57E+00 | 1.81E+00 | 2.31E+00 | 3.88E+00 | 9.57E+00 |

Notes for Table 2.2-B:

1. N/A stands for not applicable.
2. NDA stands for No Detectable Activity.
3. LLDs for airborne radionuclides listed as NDA are as follows:
   Fission Gases: 1E-04 µCi/cc
   Iodines: 1E-12 µCi/cc
   Particulates: 1E-11 µCi/cc

Table 2.2-B (*continued*)
Pilgrim Nuclear Power Station
Radioactive Effluent Release Report
Gaseous Effluents – Elevated Release
January-December 2003

| BATCH MODE RELEASES FROM ELEVATED RELEASE POINT | | | | | |
|---|---|---|---|---|---|
| Nuclide Released | Jan-Mar 2003 | Apr-Jun 2003 | Jul-Sep 2003 | Oct-Dec 2003 | Jan-Dec 2003 |
| **1. FISSION AND ACTIVATION GASES: Ci** | | | | | |
| Ar-41 | N/A | N/A | N/A | N/A | N/A |
| Kr-85 | N/A | N/A | N/A | N/A | N/A |
| Kr-85m | N/A | N/A | N/A | N/A | N/A |
| Kr-87 | N/A | N/A | N/A | N/A | N/A |
| Kr-88 | N/A | N/A | N/A | N/A | N/A |
| Xe-131m | N/A | N/A | N/A | N/A | N/A |
| Xe-133 | N/A | N/A | N/A | N/A | N/A |
| Xe-133m | N/A | N/A | N/A | N/A | N/A |
| Xe-135 | N/A | N/A | N/A | N/A | N/A |
| Xe-135m | N/A | N/A | N/A | N/A | N/A |
| Xe-137 | N/A | N/A | N/A | N/A | N/A |
| Xe-138 | N/A | N/A | N/A | N/A | N/A |
| | | | | | |
| Total for period | N/A | N/A | N/A | N/A | N/A |
| **2. IODINES: Ci** | | | | | |
| I-131 | N/A | N/A | N/A | N/A | N/A |
| I-133 | N/A | N/A | N/A | N/A | N/A |
| | | | | | |
| Total for period | N/A | N/A | N/A | N/A | N/A |
| **3. PARTICULATES WITH HALF-LIVES > 8 DAYS: Ci** | | | | | |
| Mn-54 | N/A | N/A | N/A | N/A | N/A |
| Fe-59 | N/A | N/A | N/A | N/A | N/A |
| Co-58 | N/A | N/A | N/A | N/A | N/A |
| Co-60 | N/A | N/A | N/A | N/A | N/A |
| Zn-65 | N/A | N/A | N/A | N/A | N/A |
| Sr-89 | N/A | N/A | N/A | N/A | N/A |
| Sr-90 | N/A | N/A | N/A | N/A | N/A |
| Ru-103 | N/A | N/A | N/A | N/A | N/A |
| Cs-137 | N/A | N/A | N/A | N/A | N/A |
| Ba/La-140 | N/A | N/A | N/A | N/A | N/A |
| | | | | | |
| Total for period | N/A | N/A | N/A | N/A | N/A |
| **4. TRITIUM: Ci** | | | | | |
| H-3 | N/A | N/A | N/A | N/A | N/A |

Notes for Table 2.2-B:

1. N/A stands for not applicable.
2. NDA stands for No Detectable Activity.
3. LLDs for airborne radionuclides listed as NDA are as follows:
   Fission Gases: 1E-04 µCi/cc
   Iodines: 1E-12 µCi/cc
   Particulates: 1E-11 µCi/cc

Table 2.2-C
Pilgrim Nuclear Power Station
Radioactive Effluent Release Report
Gaseous Effluents – Ground-Level Release
January-December 2003

| CONTINUOUS MODE RELEASES FROM GROUND-LEVEL RELEASE POINT | | | | | |
|---|---|---|---|---|---|
| Nuclide Released | Jan-Mar 2003 | Apr-Jun 2003 | Jul-Sep 2003 | Oct-Dec 2003 | Jan-Dec 2003 |
| **1. FISSION AND ACTIVATION GASES: Ci** | | | | | |
| Ar-41 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Kr-85 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Kr-85m | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Kr-87 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Kr-88 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Xe-131m | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Xe-133 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Xe-133m | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Xe-135 | 7.39E+00 | 4.20E+00 | 9.80E+00 | 4.52E+00 | 2.59E+01 |
| Xe-135m | 0.00E+00 | 2.60E+00 | 0.00E+00 | 0.00E+00 | 2.60E+00 |
| Xe-137 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Xe-138 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | | | | | |
| Total for period | 7.39E+00 | 6.80E+00 | 9.80E+00 | 4.52E+00 | 2.85E+01 |
| **2. IODINES: Ci** | | | | | |
| I-131 | 5.09E-04 | 2.37E-04 | 2.21E-04 | 1.00E-04 | 1.07E-03 |
| I-133 | 3.94E-03 | 1.23E-03 | 1.26E-03 | 9.39E-04 | 7.37E-03 |
| | | | | | |
| Total for period | 4.45E-03 | 1.47E-03 | 1.48E-03 | 1.04E-03 | 8.44E-03 |
| **3. PARTICULATES WITH HALF-LIVES > 8 DAYS: Ci** | | | | | |
| Mn-54 | 0.00E+00 | 9.95E-06 | 0.00E+00 | 2.20E-05 | 3.20E-05 |
| Fe-59 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Co-58 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Co-60 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Zn-65 | 0.00E+00 | 6.03E-05 | 1.60E-05 | 0.00E+00 | 7.63E-05 |
| Sr-89 | 1.63E-04 | 7.81E-04 | 1.37E-04 | 6.32E-05 | 1.14E-03 |
| Sr-90 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Ru-103 | 2.94E-06 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.94E-06 |
| Cs-137 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Ba/La-140 | 4.99E-05 | 8.06E-05 | 0.00E+00 | 0.00E+00 | 1.31E-04 |
| | | | | | |
| Total for period | 2.16E-04 | 9.32E-04 | 1.53E-04 | 8.52E-05 | 1.39E-03 |
| **4. TRITIUM: Ci** | | | | | |
| H-3 | 2.72E+02 | 6.96E+01 | 7.42E+01 | 7.26E+01 | 4.89E+02 |

Notes for Table 2.2-C:

1. N/A stands for not applicable.
2. NDA stands for No Detectable Activity.
3. LLDs for airborne radionuclides listed as NDA are as follows:
   Fission Gases: 1E-04 µCi/cc
   Iodines: 1E-12 µCi/cc
   Particulates: 1E-11 µCi/cc

Table 2.2-C (continued)
Pilgrim Nuclear Power Station
Radioactive Effluent Release Report
Gaseous Effluents – Ground-Level Release
January-December 2003

| BATCH MODE RELEASES FROM GROUND-LEVEL RELEASE POINT | | | | | |
|---|---|---|---|---|---|
| Nuclide Released | Jan-Mar 2003 | Apr-Jun 2003 | Jul-Sep 2003 | Oct-Dec 2003 | Jan-Dec 2003 |
| **1. FISSION AND ACTIVATION GASES: Ci** | | | | | |
| Ar-41 | N/A | N/A | N/A | N/A | N/A |
| Kr-85 | N/A | N/A | N/A | N/A | N/A |
| Kr-85m | N/A | N/A | N/A | N/A | N/A |
| Kr-87 | N/A | N/A | N/A | N/A | N/A |
| Kr-88 | N/A | N/A | N/A | N/A | N/A |
| Xe-131m | N/A | N/A | N/A | N/A | N/A |
| Xe-133 | N/A | N/A | N/A | N/A | N/A |
| Xe-133m | N/A | N/A | N/A | N/A | N/A |
| Xe-135 | N/A | N/A | N/A | N/A | N/A |
| Xe-135m | N/A | N/A | N/A | N/A | N/A |
| Xe-137 | N/A | N/A | N/A | N/A | N/A |
| Xe-138 | N/A | N/A | N/A | N/A | N/A |
| | | | | | |
| Total for period | N/A | N/A | N/A | N/A | N/A |
| **2. IODINES: Ci** | | | | | |
| I-131 | N/A | N/A | N/A | N/A | N/A |
| I-133 | N/A | N/A | N/A | N/A | N/A |
| | | | | | |
| Total for period | N/A | N/A | N/A | N/A | N/A |
| **3. PARTICULATES WITH HALF-LIVES > 8 DAYS: Ci** | | | | | |
| Mn-54 | N/A | N/A | N/A | N/A | N/A |
| Fe-59 | N/A | N/A | N/A | N/A | N/A |
| Co-58 | N/A | N/A | N/A | N/A | N/A |
| Co-60 | N/A | N/A | N/A | N/A | N/A |
| Zn-65 | N/A | N/A | N/A | N/A | N/A |
| Sr-89 | N/A | N/A | N/A | N/A | N/A |
| Sr-90 | N/A | N/A | N/A | N/A | N/A |
| Ru-103 | N/A | N/A | N/A | N/A | N/A |
| Cs-137 | N/A | N/A | N/A | N/A | N/A |
| Ba/La-140 | N/A | N/A | N/A | N/A | N/A |
| | | | | | |
| Total for period | N/A | N/A | N/A | N/A | N/A |
| **4. TRITIUM: Ci** | | | | | |
| H-3 | N/A | N/A | N/A | N/A | N/A |

Notes for Table 2.2-C:

1. N/A stands for not applicable.
2. NDA stands for No Detectable Activity.
3. LLDs for airborne radionuclides listed as NDA are as follows:
   Fission Gases: 1E-04 µCi/cc
   Iodines: 1E-12 µCi/cc
   Particulates: 1E-11 µCi/cc

## APPENDIX E

### UPDATED GASEOUS EFFLUENT TABLES FOR 2004

| Activity Category | Annual Release - Ci | | Percent Change |
|---|---|---|---|
| | Original Value | Revised Value | |
| Fission & Activation Gases | 5.47E+01 | 5.82E+01 | 6.4% |
| Iodines | 1.17E-03 | 1.26E-03 | 7.7% |
| Particulates | 5.02E-04 | 5.61E-04 | 11.8% |
| Tritium | 2.81E+02 | 2.81E+02 | 0.0% |

Table 2.2-A
Pilgrim Nuclear Power Station
Radioactive Effluent Release Report
Gaseous Effluents - Summation of All Releases
January-December 2004

| RELEASE PERIOD | Jan-Mar 2004 | Apr-Jun 2004 | Jul-Sep 2004 | Oct-Dec 2004 | Jan-Dec 2004 | Est. Total Error |
|---|---|---|---|---|---|---|
| **A. FISSION AND ACTIVATION GASES** | | | | | | |
| Total Release: Ci | 1.83E+01 | 1.95E+01 | 1.04E+01 | 1.01E+01 | 5.82E+01 | ±22% |
| Average Release Rate: µCi/sec | 2.32E+00 | 2.47E+00 | 1.31E+00 | 1.28E+00 | 1.85E+00 | |
| Percent of Effluent Control Limit* | * | * | * | * | * | |
| **B. IODINE-131** | | | | | | |
| Total Iodine-131 Release: Ci | 2.94E-04 | 3.35E-04 | 3.35E-04 | 2.97E-04 | 1.26E-03 | ±20% |
| Average Release Rate: µCi/sec | 3.73E-05 | 4.25E-05 | 4.25E-05 | 3.76E-05 | 4.00E-05 | |
| Percent of Effluent Control Limit* | * | * | * | * | * | |
| **C. PARTICULATES WITH HALF-LIVES > 8 DAYS** | | | | | | |
| Total Release: Ci | 2.26E-04 | 1.34E-04 | 1.20E-04 | 8.05E-05 | 5.61E-04 | ±21% |
| Average Release Rate: µCi/sec | 2.87E-05 | 1.70E-05 | 1.53E-05 | 1.02E-05 | 1.78E-05 | |
| Percent of Effluent Control Limit* | * | * | * | * | * | |
| Gross Alpha Radioactivity: Ci | NDA | NDA | NDA | NDA | NDA | |
| **D. TRITIUM** | | | | | | |
| Total Release: Ci | 8.41E+01 | 5.72E+01 | 6.30E+01 | 7.69E+01 | 2.81E+02 | ±20% |
| Average Release Rate: µCi/sec | 1.07E+01 | 7.26E+00 | 7.99E+00 | 9.75E+00 | 8.92E+00 | |
| 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 µCi/cc.

Table 2.2-B
Pilgrim Nuclear Power Station
Radioactive Effluent Release Report
Gaseous Effluents – Elevated Release
January-December 2004

| CONTINUOUS MODE RELEASES FROM ELEVATED RELEASE POINT | | | | | |
|---|---|---|---|---|---|
| Nuclide Released | Jan-Mar 2004 | Apr-Jun 2004 | Jul-Sep 2004 | Oct-Dec 2004 | Jan-Dec 2004 |
| **1. FISSION AND ACTIVATION GASES: Ci** | | | | | |
| Ar-41 | 7.95E-02 | 1.36E-01 | 0.00E+00 | 0.00E+00 | 2.15E-01 |
| Kr-85 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Kr-85m | 2.25E+00 | 2.27E+00 | 2.03E+00 | 2.29E+00 | 8.83E+00 |
| Kr-87 | 3.18E-01 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 3.18E-01 |
| Kr-88 | 2.87E-01 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.87E-01 |
| Xe-131m | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Xe-133 | 2.95E+00 | 3.28E+00 | 3.42E+00 | 3.33E+00 | 1.30E+01 |
| Xe-133m | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Xe-135 | 6.66E-01 | 1.21E-01 | 2.84E-01 | 2.92E-01 | 1.36E+00 |
| Xe-135m | 3.65E-01 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 3.65E-01 |
| Xe-137 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Xe-138 | 9.77E-01 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 9.77E-01 |
| | | | | | |
| Total for Period | 7.88E+00 | 5.80E+00 | 5.74E+00 | 5.92E+00 | 2.53E+01 |
| **2. IODINES: Ci** | | | | | |
| I-131 | 1.53E-04 | 1.39E-04 | 1.09E-04 | 8.43E-05 | 4.85E-04 |
| I-133 | 9.81E-04 | 1.03E-03 | 7.49E-04 | 6.18E-04 | 3.38E-03 |
| | | | | | |
| Total for Period | 1.13E-03 | 1.17E-03 | 8.58E-04 | 7.02E-04 | 3.86E-03 |
| **3. PARTICULATES WITH HALF-LIVES > 8 DAYS: Ci** | | | | | |
| Mn-54 | 1.84E-06 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.84E-06 |
| Fe-59 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Co-58 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Co-60 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Zn-65 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Sr-89 | 1.12E-04 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.12E-04 |
| Sr-90 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Ru-103 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Cs-137 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Ba/La-140 | 3.41E-05 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 3.41E-05 |
| | | | | | |
| Total for Period | 1.48E-04 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.48E-04 |
| **4. TRITIUM: Ci** | | | | | |
| H-3 | 2.91E+00 | 1.90E+00 | 2.52E+00 | 2.38E+00 | 9.71E+00 |

Notes for Table 2.2-B:

1. N/A stands for not applicable.
2. NDA stands for No Detectable Activity.
3. LLDs for airborne radionuclides listed as NDA are as follows:
   Fission Gases: 1E-04 µCi/cc
   Iodines: 1E-12 µCi/cc
   Particulates: 1E-11 µCi/cc

Table 2.2-B (continued)
Pilgrim Nuclear Power Station
Radioactive Effluent Release Report
Gaseous Effluents – Elevated Release
January-December 2004

| BATCH MODE RELEASES FROM ELEVATED RELEASE POINT | | | | | |
|---|---|---|---|---|---|
| Nuclide Released | Jan-Mar 2004 | Apr-Jun 2004 | Jul-Sep 2004 | Oct-Dec 2004 | Jan-Dec 2004 |
| **1. FISSION AND ACTIVATION GASES: Ci** | | | | | |
| Ar-41 | N/A | N/A | N/A | N/A | N/A |
| Kr-85 | N/A | N/A | N/A | N/A | N/A |
| Kr-85m | N/A | N/A | N/A | N/A | N/A |
| Kr-87 | N/A | N/A | N/A | N/A | N/A |
| Kr-88 | N/A | N/A | N/A | N/A | N/A |
| Xe-131m | N/A | N/A | N/A | N/A | N/A |
| Xe-133 | N/A | N/A | N/A | N/A | N/A |
| Xe-133m | N/A | N/A | N/A | N/A | N/A |
| Xe-135 | N/A | N/A | N/A | N/A | N/A |
| Xe-135m | N/A | N/A | N/A | N/A | N/A |
| Xe-137 | N/A | N/A | N/A | N/A | N/A |
| Xe-138 | N/A | N/A | N/A | N/A | N/A |
| | | | | | |
| Total for period | N/A | N/A | N/A | N/A | N/A |
| **2. IODINES: Ci** | | | | | |
| I-131 | N/A | N/A | N/A | N/A | N/A |
| I-133 | N/A | N/A | N/A | N/A | N/A |
| | | | | | |
| Total for period | N/A | N/A | N/A | N/A | N/A |
| **3. PARTICULATES WITH HALF-LIVES > 8 DAYS: Ci** | | | | | |
| Mn-54 | N/A | N/A | N/A | N/A | N/A |
| Fe-59 | N/A | N/A | N/A | N/A | N/A |
| Co-58 | N/A | N/A | N/A | N/A | N/A |
| Co-60 | N/A | N/A | N/A | N/A | N/A |
| Zn-65 | N/A | N/A | N/A | N/A | N/A |
| Sr-89 | N/A | N/A | N/A | N/A | N/A |
| Sr-90 | N/A | N/A | N/A | N/A | N/A |
| Ru-103 | N/A | N/A | N/A | N/A | N/A |
| Cs-137 | N/A | N/A | N/A | N/A | N/A |
| Ba/La-140 | N/A | N/A | N/A | N/A | N/A |
| | | | | | |
| Total for period | N/A | N/A | N/A | N/A | N/A |
| **4. TRITIUM: Ci** | | | | | |
| H-3 | N/A | N/A | N/A | N/A | N/A |

Notes for Table 2.2-B:

1. N/A stands for not applicable.
2. NDA stands for No Detectable Activity.
3. LLDs for airborne radionuclides listed as NDA are as follows:
   Fission Gases: 1E-04 μCi/cc
   Iodines: 1E-12 μCi/cc
   Particulates: 1E-11 μCi/cc

Table 2.2-C
Pilgrim Nuclear Power Station
Radioactive Effluent Release Report
Gaseous Effluents – Ground-Level Release
January-December 2004

| CONTINUOUS MODE RELEASES FROM GROUND-LEVEL RELEASE POINT | | | | | |
|---|---|---|---|---|---|
| Nuclide Released | Jan-Mar 2004 | Apr-Jun 2004 | Jul-Sep 2004 | Oct-Dec 2004 | Jan-Dec 2004 |
| **1. FISSION AND ACTIVATION GASES: Ci** | | | | | |
| Ar-41 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Kr-85 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Kr-85m | 0.00E+00 | 7.83E-01 | 0.00E+00 | 0.00E+00 | 7.83E-01 |
| Kr-87 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Kr-88 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Xe-131m | 0.00E+00 | 7.79E+00 | 0.00E+00 | 0.00E+00 | 7.79E+00 |
| Xe-133 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Xe-133m | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Xe-135 | 7.63E+00 | 5.13E+00 | 4.61E+00 | 4.15E+00 | 2.15E+01 |
| Xe-135m | 2.81E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.81E+00 |
| Xe-137 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Xe-138 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | | | | | |
| Total for period | 1.04E+01 | 1.37E+01 | 4.61E+00 | 4.15E+00 | 3.29E+01 |
| **2. IODINES: Ci** | | | | | |
| I-131 | 1.41E-04 | 1.96E-04 | 2.26E-04 | 2.12E-04 | 7.76E-04 |
| I-133 | 9.30E-04 | 1.36E-03 | 1.32E-03 | 1.18E-03 | 4.79E-03 |
| | | | | | |
| Total for period | 1.07E-03 | 1.56E-03 | 1.54E-03 | 1.39E-03 | 5.57E-03 |
| **3. PARTICULATES WITH HALF-LIVES > 8 DAYS: Ci** | | | | | |
| Mn-54 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Fe-59 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Co-58 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Co-60 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Zn-65 | 0.00E+00 | 2.33E-05 | 0.00E+00 | 0.00E+00 | 2.33E-05 |
| Sr-89 | 7.86E-05 | 1.10E-04 | 1.20E-04 | 8.05E-05 | 3.90E-04 |
| Sr-90 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Ru-103 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Cs-137 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Ba/La-140 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | | | | | |
| Total for period | 7.86E-05 | 1.34E-04 | 1.20E-04 | 8.05E-05 | 4.13E-04 |
| **4. TRITIUM: Ci** | | | | | |
| H-3 | 8.12E+01 | 5.53E+01 | 6.05E+01 | 7.45E+01 | 2.72E+02 |

Notes for Table 2.2-C:

1. N/A stands for not applicable.
2. NDA stands for No Detectable Activity.
3. LLDs for airborne radionuclides listed as NDA are as follows:
   Fission Gases: 1E-04 μCi/cc
   Iodines: 1E-12 μCi/cc
   Particulates: 1E-11 μCi/cc

Table 2.2-C (continued)
Pilgrim Nuclear Power Station
Radioactive Effluent Release Report
Gaseous Effluents – Ground-Level Release
January-December 2004

| BATCH MODE RELEASES FROM GROUND-LEVEL RELEASE POINT | | | | | |
|---|---|---|---|---|---|
| Nuclide Released | Jan-Mar 2004 | Apr-Jun 2004 | Jul-Sep 2004 | Oct-Dec 2004 | Jan-Dec 2004 |
| **1. FISSION AND ACTIVATION GASES: Ci** | | | | | |
| Ar-41 | N/A | N/A | N/A | N/A | N/A |
| Kr-85 | N/A | N/A | N/A | N/A | N/A |
| Kr-85m | N/A | N/A | N/A | N/A | N/A |
| Kr-87 | N/A | N/A | N/A | N/A | N/A |
| Kr-88 | N/A | N/A | N/A | N/A | N/A |
| Xe-131m | N/A | N/A | N/A | N/A | N/A |
| Xe-133 | N/A | N/A | N/A | N/A | N/A |
| Xe-133m | N/A | N/A | N/A | N/A | N/A |
| Xe-135 | N/A | N/A | N/A | N/A | N/A |
| Xe-135m | N/A | N/A | N/A | N/A | N/A |
| Xe-137 | N/A | N/A | N/A | N/A | N/A |
| Xe-138 | N/A | N/A | N/A | N/A | N/A |
| | | | | | |
| Total for period | N/A | N/A | N/A | N/A | N/A |
| **2. IODINES: Ci** | | | | | |
| I-131 | N/A | N/A | N/A | N/A | N/A |
| I-133 | N/A | N/A | N/A | N/A | N/A |
| | | | | | |
| Total for period | N/A | N/A | N/A | N/A | N/A |
| **3. PARTICULATES WITH HALF-LIVES > 8 DAYS: Ci** | | | | | |
| Mn-54 | N/A | N/A | N/A | N/A | N/A |
| Fe-59 | N/A | N/A | N/A | N/A | N/A |
| Co-58 | N/A | N/A | N/A | N/A | N/A |
| Co-60 | N/A | N/A | N/A | N/A | N/A |
| Zn-65 | N/A | N/A | N/A | N/A | N/A |
| Sr-89 | N/A | N/A | N/A | N/A | N/A |
| Sr-90 | N/A | N/A | N/A | N/A | N/A |
| Ru-103 | N/A | N/A | N/A | N/A | N/A |
| Cs-137 | N/A | N/A | N/A | N/A | N/A |
| Ba/La-140 | N/A | N/A | N/A | N/A | N/A |
| | | | | | |
| Total for period | N/A | N/A | N/A | N/A | N/A |
| **4. TRITIUM: Ci** | | | | | |
| H-3 | N/A | N/A | N/A | N/A | N/A |

Notes for Table 2.2-C:

1. N/A stands for not applicable.
2. NDA stands for No Detectable Activity.
3. LLDs for airborne radionuclides listed as NDA are as follows:
   Fission Gases: 1E-04 μCi/cc
   Iodines: 1E-12 μCi/cc
   Particulates: 1E-11 μCi/cc

## APPENDIX F

### UPDATED GASEOUS EFFLUENT TABLES FOR 2005

| Activity Category | Annual Release - Ci | | Percent Change |
|---|---|---|---|
| | Original Value | Revised Value | |
| Fission & Activation Gases | 1.33E+02 | 1.33E+02 | 0.0% |
| Iodines | 1.32E-03 | 1.32E-03 | 0.0% |
| Particulates | 7.97E-04 | 7.97E-04 | 0.0% |
| Tritium | 4.45E+02 | 4.45E+02 | 0.0% |

Table 2.2-A
Pilgrim Nuclear Power Station
Radioactive Effluent Release Report
Gaseous Effluents - Summation of All Releases
January-December 2005

| RELEASE PERIOD | Jan-Mar 2005 | Apr-Jun 2005 | Jul-Sep 2005 | Oct-Dec 2005 | Jan-Dec 2005 | Est. Total Error |
|---|---|---|---|---|---|---|
| **A. FISSION AND ACTIVATION GASES** | | | | | | |
| Total Release: Ci | 1.62E+01 | 4.11E+01 | 1.66E+01 | 5.95E+01 | 1.33E+02 | ±22% |
| Average Release Rate: µCi/sec | 2.06E+00 | 5.21E+00 | 2.11E+00 | 7.54E+00 | 4.23E+00 | |
| Percent of Effluent Control Limit* | * | * | * | * | * | |
| **B. IODINE-131** | | | | | | |
| Total Iodine-131 Release: Ci | 3.62E-04 | 3.96E-04 | 2.75E-04 | 2.85E-04 | 1.32E-03 | ±20% |
| Average Release Rate: µCi/sec | 4.59E-05 | 5.02E-05 | 3.48E-05 | 3.61E-05 | 4.18E-05 | |
| Percent of Effluent Control Limit* | * | * | * | * | * | |
| **C. PARTICULATES WITH HALF-LIVES > 8 DAYS** | | | | | | |
| Total Release: Ci | 1.48E-04 | 4.63E-04 | 1.63E-04 | 2.36E-05 | 7.97E-04 | ±21% |
| Average Release Rate: µCi/sec | 1.87E-05 | 5.87E-05 | 2.07E-05 | 2.99E-06 | 2.53E-05 | |
| Percent of Effluent Control Limit* | * | * | * | * | * | |
| Gross Alpha Radioactivity: Ci | NDA | NDA | NDA | NDA | NDA | |
| **D. TRITIUM** | | | | | | |
| Total Release: Ci | 1.06E+02 | 4.06E+01 | 3.62E+01 | 2.62E+02 | 4.45E+02 | ±20% |
| Average Release Rate: µCi/sec | 1.34E+01 | 5.16E+00 | 4.59E+00 | 3.33E+01 | 1.41E+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 µCi/cc.

Table 2.2-B
Pilgrim Nuclear Power Station
Radioactive Effluent Release Report
Gaseous Effluents – Elevated Release
January-December 2005

| CONTINUOUS MODE RELEASES FROM ELEVATED RELEASE POINT | | | | | |
|---|---|---|---|---|---|
| Nuclide Released | Jan-Mar 2005 | Apr-Jun 2005 | Jul-Sep 2005 | Oct-Dec 2005 | Jan-Dec 2005 |
| **1. FISSION AND ACTIVATION GASES: Ci** | | | | | |
| Ar-41 | 2.95E-01 | 7.84E-01 | 9.53E-01 | 1.28E-01 | 2.16E+00 |
| Kr-85 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Kr-85m | 2.71E+00 | 3.76E+00 | 3.83E+00 | 7.34E+00 | 1.76E+01 |
| Kr-87 | 0.00E+00 | 3.01E-01 | 0.00E+00 | 1.21E-01 | 4.23E-01 |
| Kr-88 | 0.00E+00 | 1.03E+00 | 9.25E-01 | 2.34E+00 | 4.30E+00 |
| Xe-131m | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Xe-133 | 6.11E+00 | 1.27E+01 | 4.07E+00 | 3.66E+01 | 5.94E+01 |
| Xe-133m | 0.00E+00 | 1.30E-01 | 0.00E+00 | 0.00E+00 | 1.30E-01 |
| Xe-135 | 3.76E-01 | 1.28E+00 | 1.24E-01 | 6.68E-01 | 2.45E+00 |
| Xe-135m | 0.00E+00 | 2.73E-01 | 3.10E-01 | 3.30E-01 | 9.13E-01 |
| Xe-137 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Xe-138 | 0.00E+00 | 1.78E-01 | 0.00E+00 | 6.41E-01 | 8.19E-01 |
| | | | | | |
| Total for Period | 9.49E+00 | 2.04E+01 | 1.02E+01 | 4.81E+01 | 8.83E+01 |
| **2. IODINES: Ci** | | | | | |
| I-131 | 8.94E-05 | 1.68E-04 | 6.51E-05 | 4.67E-05 | 3.69E-04 |
| I-133 | 5.78E-04 | 7.28E-04 | 4.83E-04 | 3.11E-04 | 2.10E-03 |
| | | | | | |
| Total for Period | 6.67E-04 | 8.96E-04 | 5.48E-04 | 3.58E-04 | 2.47E-03 |
| **3. PARTICULATES WITH HALF-LIVES > 8 DAYS: Ci** | | | | | |
| Cr-51 | 0.00E+00 | 1.50E-05 | 0.00E+00 | 0.00E+00 | 1.50E-05 |
| Mn-54 | 0.00E+00 | 1.16E-05 | 0.00E+00 | 0.00E+00 | 1.16E-05 |
| Fe-59 | 0.00E+00 | 5.70E-06 | 0.00E+00 | 0.00E+00 | 5.70E-06 |
| Co-58 | 0.00E+00 | 2.04E-06 | 0.00E+00 | 0.00E+00 | 2.04E-06 |
| Co-60 | 0.00E+00 | 5.31E-06 | 0.00E+00 | 0.00E+00 | 5.31E-06 |
| Zn-65 | 0.00E+00 | 2.14E-06 | 0.00E+00 | 0.00E+00 | 2.14E-06 |
| Sr-89 | 0.00E+00 | 1.49E-05 | 0.00E+00 | 0.00E+00 | 1.49E-05 |
| Sr-90 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Cs-137 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Ba/La-140 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | | | | | |
| Total for Period | 0.00E+00 | 5.67E-05 | 0.00E+00 | 0.00E+00 | 5.67E-05 |
| **4. TRITIUM: Ci** | | | | | |
| H-3 | 8.85E-01 | 6.56E-01 | 6.51E-01 | 7.98E-02 | 2.27E+00 |

Notes for Table 2.2-B:

1. N/A stands for not applicable.
2. NDA stands for No Detectable Activity.
3. LLDs for airborne radionuclides listed as NDA are as follows:
   Fission Gases: 1E-04 µCi/cc
   Iodines: 1E-12 µCi/cc
   Particulates: 1E-11 µCi/cc

Table 2.2-B (continued)
Pilgrim Nuclear Power Station
Radioactive Effluent Release Report
Gaseous Effluents – Elevated Release
January-December 2005

| BATCH MODE RELEASES FROM ELEVATED RELEASE POINT | | | | | |
|---|---|---|---|---|---|
| Nuclide Released | Jan-Mar 2005 | Apr-Jun 2005 | Jul-Sep 2005 | Oct-Dec 2005 | Jan-Dec 2005 |
| **1. FISSION AND ACTIVATION GASES: Ci** | | | | | |
| Ar-41 | N/A | N/A | N/A | N/A | N/A |
| Kr-85 | N/A | N/A | N/A | N/A | N/A |
| Kr-85m | N/A | N/A | N/A | N/A | N/A |
| Kr-87 | N/A | N/A | N/A | N/A | N/A |
| Kr-88 | N/A | N/A | N/A | N/A | N/A |
| Xe-131m | N/A | N/A | N/A | N/A | N/A |
| Xe-133 | N/A | N/A | N/A | N/A | N/A |
| Xe-133m | N/A | N/A | N/A | N/A | N/A |
| Xe-135 | N/A | N/A | N/A | N/A | N/A |
| Xe-135m | N/A | N/A | N/A | N/A | N/A |
| Xe-137 | N/A | N/A | N/A | N/A | N/A |
| Xe-138 | N/A | N/A | N/A | N/A | N/A |
| | | | | | |
| Total for period | N/A | N/A | N/A | N/A | N/A |
| **2. IODINES: Ci** | | | | | |
| I-131 | N/A | N/A | N/A | N/A | N/A |
| I-133 | N/A | N/A | N/A | N/A | N/A |
| | | | | | |
| Total for period | N/A | N/A | N/A | N/A | N/A |
| **3. PARTICULATES WITH HALF-LIVES > 8 DAYS: Ci** | | | | | |
| Cr-51 | N/A | N/A | N/A | N/A | N/A |
| Mn-54 | N/A | N/A | N/A | N/A | N/A |
| Fe-59 | N/A | N/A | N/A | N/A | N/A |
| Co-58 | N/A | N/A | N/A | N/A | N/A |
| Co-60 | N/A | N/A | N/A | N/A | N/A |
| Zn-65 | N/A | N/A | N/A | N/A | N/A |
| Sr-89 | N/A | N/A | N/A | N/A | N/A |
| Sr-90 | N/A | N/A | N/A | N/A | N/A |
| Cs-137 | N/A | N/A | N/A | N/A | N/A |
| Ba/La-140 | N/A | N/A | N/A | N/A | N/A |
| | | | | | |
| Total for period | N/A | N/A | N/A | N/A | N/A |
| **4. TRITIUM: Ci** | | | | | |
| H-3 | N/A | N/A | N/A | N/A | N/A |

Notes for Table 2.2-B:

1. N/A stands for not applicable.
2. NDA stands for No Detectable Activity.
3. LLDs for airborne radionuclides listed as NDA are as follows:
   Fission Gases: 1E-04 µCi/cc
   Iodines: 1E-12 µCi/cc
   Particulates: 1E-11 µCi/cc

Table 2.2-C
Pilgrim Nuclear Power Station
Radioactive Effluent Release Report
Gaseous Effluents – Ground-Level Release
January-December 2005

| CONTINUOUS MODE RELEASES FROM GROUND-LEVEL RELEASE POINT | | | | | |
|---|---|---|---|---|---|
| Nuclide Released | Jan-Mar 2005 | Apr-Jun 2005 | Jul-Sep 2005 | Oct-Dec 2005 | Jan-Dec 2005 |
| **1. FISSION AND ACTIVATION GASES: Ci** | | | | | |
| Ar-41 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Kr-85 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Kr-85m | 0.00E+00 | 0.00E+00 | 0.00E+00 | 5.29E-01 | 5.29E-01 |
| Kr-87 | 0.00E+00 | 8.65E-01 | 0.00E+00 | 8.68E-01 | 1.73E+00 |
| Kr-88 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Xe-131m | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Xe-133 | 5.09E-01 | 3.39E+00 | 4.85E-01 | 8.42E-01 | 5.22E+00 |
| Xe-133m | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Xe-135 | 6.20E+00 | 2.24E+00 | 5.94E+00 | 9.10E+00 | 2.35E+01 |
| Xe-135m | 0.00E+00 | 8.97E-01 | 0.00E+00 | 0.00E+00 | 8.97E-01 |
| Xe-137 | 0.00E+00 | 6.26E+00 | 0.00E+00 | 0.00E+00 | 6.26E+00 |
| Xe-138 | 0.00E+00 | 7.04E+00 | 0.00E+00 | 0.00E+00 | 7.04E+00 |
| | | | | | |
| Total for period | 6.71E+00 | 2.07E+01 | 6.42E+00 | 1.13E+01 | 4.52E+01 |
| **2. IODINES: Ci** | | | | | |
| I-131 | 2.72E-04 | 2.28E-04 | 2.10E-04 | 2.38E-04 | 9.48E-04 |
| I-133 | 1.92E-03 | 1.14E-03 | 1.61E-03 | 2.05E-03 | 6.71E-03 |
| | | | | | |
| Total for period | 2.19E-03 | 1.37E-03 | 1.82E-03 | 2.28E-03 | 7.66E-03 |
| **3. PARTICULATES WITH HALF-LIVES > 8 DAYS: Ci** | | | | | |
| Cr-51 | 0.00E+00 | 8.81E-06 | 0.00E+00 | 0.00E+00 | 8.81E-06 |
| Mn-54 | 0.00E+00 | 2.83E-05 | 0.00E+00 | 0.00E+00 | 2.83E-05 |
| Fe-59 | 0.00E+00 | 5.23E-06 | 0.00E+00 | 0.00E+00 | 5.23E-06 |
| Co-58 | 0.00E+00 | 3.16E-06 | 0.00E+00 | 0.00E+00 | 3.16E-06 |
| Co-60 | 0.00E+00 | 3.49E-05 | 0.00E+00 | 0.00E+00 | 3.49E-05 |
| Zn-65 | 0.00E+00 | 7.62E-05 | 0.00E+00 | 0.00E+00 | 7.62E-05 |
| Sr-89 | 1.48E-04 | 2.25E-04 | 1.38E-04 | 0.00E+00 | 5.11E-04 |
| Sr-90 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Cs-137 | 0.00E+00 | 1.55E-06 | 0.00E+00 | 0.00E+00 | 1.55E-06 |
| Ba/La-140 | 0.00E+00 | 2.28E-05 | 2.49E-05 | 2.36E-05 | 7.13E-05 |
| | | | | | |
| Total for period | 1.48E-04 | 4.06E-04 | 1.63E-04 | 2.36E-05 | 7.41E-04 |
| **4. TRITIUM: Ci** | | | | | |
| H-3 | 1.05E+02 | 4.00E+01 | 3.55E+01 | 2.62E+02 | 4.43E+02 |

Notes for Table 2.2-C:

1. N/A stands for not applicable.
2. NDA stands for No Detectable Activity.
3. LLDs for airborne radionuclides listed as NDA are as follows:
   Fission Gases: 1E-04 µCi/cc
   Iodines: 1E-12 µCi/cc
   Particulates: 1E-11 µCi/cc

Table 2.2-C (continued)
Pilgrim Nuclear Power Station
Radioactive Effluent Release Report
Gaseous Effluents – Ground-Level Release
January-December 2005

| BATCH MODE RELEASES FROM GROUND-LEVEL RELEASE POINT | | | | | |
|---|---|---|---|---|---|
| Nuclide Released | Jan-Mar 2005 | Apr-Jun 2005 | Jul-Sep 2005 | Oct-Dec 2005 | Jan-Dec 2005 |
| **1. FISSION AND ACTIVATION GASES: Ci** | | | | | |
| Ar-41 | N/A | N/A | N/A | N/A | N/A |
| Kr-85 | N/A | N/A | N/A | N/A | N/A |
| Kr-85m | N/A | N/A | N/A | N/A | N/A |
| Kr-87 | N/A | N/A | N/A | N/A | N/A |
| Kr-88 | N/A | N/A | N/A | N/A | N/A |
| Xe-131m | N/A | N/A | N/A | N/A | N/A |
| Xe-133 | N/A | N/A | N/A | N/A | N/A |
| Xe-133m | N/A | N/A | N/A | N/A | N/A |
| Xe-135 | N/A | N/A | N/A | N/A | N/A |
| Xe-135m | N/A | N/A | N/A | N/A | N/A |
| Xe-137 | N/A | N/A | N/A | N/A | N/A |
| Xe-138 | N/A | N/A | N/A | N/A | N/A |
| | | | | | |
| Total for period | N/A | N/A | N/A | N/A | N/A |
| **2. IODINES: Ci** | | | | | |
| I-131 | N/A | N/A | N/A | N/A | N/A |
| I-133 | N/A | N/A | N/A | N/A | N/A |
| | | | | | |
| Total for period | N/A | N/A | N/A | N/A | N/A |
| **3. PARTICULATES WITH HALF-LIVES > 8 DAYS: Ci** | | | | | |
| Cr-51 | N/A | N/A | N/A | N/A | N/A |
| Mn-54 | N/A | N/A | N/A | N/A | N/A |
| Fe-59 | N/A | N/A | N/A | N/A | N/A |
| Co-58 | N/A | N/A | N/A | N/A | N/A |
| Co-60 | N/A | N/A | N/A | N/A | N/A |
| Zn-65 | N/A | N/A | N/A | N/A | N/A |
| Sr-89 | N/A | N/A | N/A | N/A | N/A |
| Sr-90 | N/A | N/A | N/A | N/A | N/A |
| Cs-137 | N/A | N/A | N/A | N/A | N/A |
| Ba/La-140 | N/A | N/A | N/A | N/A | N/A |
| | | | | | |
| Total for period | N/A | N/A | N/A | N/A | N/A |
| **4. TRITIUM: Ci** | | | | | |
| H-3 | N/A | N/A | N/A | N/A | N/A |

Notes for Table 2.2-C:

1. N/A stands for not applicable.
2. NDA stands for No Detectable Activity.
3. LLDs for airborne radionuclides listed as NDA are as follows:
   Fission Gases: 1E-04 µCi/cc
   Iodines: 1E-12 µCi/cc
   Particulates: 1E-11 µCi/cc