



Coolidge Nuclear Plant Nuclear Generation Group

Annual Radioactive Effluent Release Report

January 1, 2005 through December 31, 2005



AEP: America's Energy Partner™

TABLE OF CONTENTS

| | <u>Page</u> |
|---|-------------|
| Table of Contents | i |
| I. Introduction | 1 |
| II. Radioactive Releases and Radiological Impact on Man | 1 |
| Liquid Releases | 2 |
| Gaseous Releases | 2 |
| Solid Waste Disposition | 2 |
| III. Meteorological | 2 |
| IV. Offsite Dose Calculation Manual (ODCM) Changes | 2 |
| V. Total Dose | 3 |
| VI. Radiation Monitors Inoperable Greater Than 30 Days | 3 |
| VII. Conclusion | 3 |

LIST OF APPENDICES

| Appendix | Title |
|----------|--|
| A1.1 | 2005 Effluent and Waste Disposal Annual Report - <u>Supplemental Information</u> |
| A1.2 | Summary of Maximum Individual Doses: First Quarter, Second Quarter, Third Quarter and Fourth Quarter 2005 |
| A2.1 | Hours at Each Wind Speed and Direction: First Quarter, 2005 |
| A2.2 | Hours at Each Wind Speed and Direction: Second Quarter, 2005 |
| A2.3 | Hours at Each Wind Speed and Direction: Third Quarter, 2005 |
| A2.4 | Hours at Each Wind Speed and Direction: Fourth Quarter, 2005 |
| A3.0 | Offsite Dose Calculation Manual (ODCM) Changes |

I. INTRODUCTION

This report discusses the radioactive discharges from Unit 1 and Unit 2 of the Donald C. Cook Nuclear Plant (CNP) during 2005. This is in accordance with the requirements of CNP Technical Specification 5.6.3.

The table below summarizes the pertinent statistics concerning the Plant's operation during the period from January 1, 2005, to December 31, 2005. The data in this table and the descriptive information on plant operation are based upon the respective Unit's Monthly Operating Reports, Performance Indicators and Control Room Logs for 2005.

| Parameter | Unit 1 | Unit 2 |
|--|-----------|-----------|
| Gross Electrical Energy Generation (MWH) | 8,336,729 | 9,720,540 |
| Unit Service Factor (%) | 90.7 | 98.2 |
| Unit Capacity Factor - MDC Net (%) | 92.0 | 101.4 |

Unit 1 entered the reporting period in Mode 1 at Nominal Full Power (NFP). Small power adjustments were made to facilitate main turbine valve testing throughout the year. The unit entered scheduled Unit 1 Cycle 20 refueling outage on March 26, 2005. The unit attained criticality on April 25, 2005, and subsequently tripped on an intermediate range High Flux signal on April 26, 2005. The unit attained criticality on April 26, 2005, and returned to NFP on April 30, 2005. The unit reduced power to 8 percent on June 18, 2005, to repair the Main Generator Voltage Regulator and returned to NFP on June 20, 2005. The unit was shutdown on September 25, 2005, to repair an oil leak on Reactor Coolant Pump 13. The unit attained criticality on September 25, 2005, and NFP was achieved on September 27, 2005. The unit exited the reporting period at NFP.

Unit 2 entered the reporting period in Mode 1 at NFP. Small power adjustments were made to facilitate main turbine valve testing throughout the year. The unit was shutdown on September 22, 2005, to repair an oil leak on Reactor Coolant Pump 21. The unit attained criticality on September 23, 2005, and NFP was achieved on September 24, 2005. The unit experienced an automatic reactor trip due to a Reactor Coolant Pump bus under voltage signal on November 8, 2005. Repairs were made and the unit attained criticality on November 10, 2005, and returned to NFP on November 12, 2005. The unit exited the reporting period at NFP.

II. RADIOACTIVE RELEASES AND RADIOLOGICAL IMPACT ON MAN

Since a number of release points are common to both units, the release data from both units are combined to form this two-unit, Annual Radioactive Effluent Release Report. Appendix A1.1 through A2.4 of this report present the information in accordance with Section 5.6.3 of Appendix A to the Facility Operating Licenses, as specified in the Technical Specifications, Regulatory Guide 1.21 and 10 CFR Part 50, Appendix I.

The "MIDAS System" is a computer code that calculates doses due to radionuclides that were released from CNP.

All liquid and gaseous releases were well within Offsite Dose Calculation Manual limits and Federal Limits.

There were no abnormal liquid or gaseous releases.

Liquid Releases

During 2005 there were 55 liquid batch releases performed. During the first quarter there were 16 liquid batch releases. During the second quarter there were 16. During the third quarter there were 11. During the fourth quarter there were 12.

Estimated doses (in millirem) to maximally exposed individuals via the liquid release pathways are given in Appendix 1.2 of this report.

Gaseous Releases

During the first quarter of 2005 there were four batch releases from Waste Gas Decay Tanks (GDT), one Containment Purge release and 63 Containment Pressure Reliefs (CPR). During the second quarter there was one batch release from a GDT and 55 CPR. During the third quarter there were two batch releases from GDT and 64 CPR. During the fourth quarter there was one batch release from GDT and 66 CPR. CPR continue to be listed as batch releases in accordance with Nuclear Regulatory Commission Inspections 50-315/89016 (DRSS) and 50-316/8917 (DRSS). Doses continue to be calculated utilizing continuous criteria as allowed by NUREG-0133. There were a total of eight GDT, one containment purge and 248 CPR gaseous batch releases made during 2005.

In calculating the dose consequences for continuous and batch gaseous releases during 2005, the meteorological data measured at the time of the release were used.

The estimated doses (in millirem) to maximally exposed individuals via the gaseous release pathways are given in Appendix 1.2 of this report.

Solid Waste Disposition

There were 68 shipments of radioactive waste made during 2005. This included shipments made from the site and the various radioactive waste processors to the ultimate disposal site.

III. METEOROLOGICAL

Appendices A2.1, A2.2, A2.3, and A2.4 of this report contain the cumulative joint frequency distribution tables of wind speed and wind direction, corresponding to the various atmospheric stability classes for the first, second, third and fourth quarters of 2005. Hourly meteorological data is available for review and/or inspection upon request.

IV. OFFSITE DOSE CALCULATION MANUAL (ODCM) CHANGES

The Offsite Dose Calculation Manual, PMP-6010-OSD-001, was changed during the report period. Copies of Revisions 18 and 19 are included as part of the report.

V. TOTAL DOSE

Section 3.2.5 of the ODCM requires that the dose or dose commitment to a real individual from all uranium fuel cycle sources in Berrien County be limited to no more than 25 millirem to the total body or any organ (except the thyroid, which is limited to no more than 75 millirem) over a period of 12 consecutive months to show conformance with the requirements of 40 CFR Part 190. The maximum cumulative dose to an individual from liquid and gaseous effluents during 2005 was well within the ODCM limits. Measurements using thermoluminescent dosimeters at 11 offsite stations indicate that the dose due to direct radiation is consistent with preoperational and current control (background) levels. This is fully evaluated in the Annual Radiological Environmental Operating Report.

The annual dose to the maximum individual will be estimated by first, summing the quarterly total body air dose, the quarterly skin air dose, the quarterly critical organ dose from iodines and particulates, the quarterly total body dose from liquid effluents, the quarterly critical organ dose from liquid effluents, and the Radiological Environmental Monitoring Program onsite direct radiation TLD data. These quarterly values will be summed and compared to the annual limit. The table that follows here represents the above verbal description:

| Dose | 1 st Quarter | 2 nd Quarter | 3 rd Quarter | 4 th Quarter |
|--|-------------------------|-------------------------|-------------------------|-------------------------|
| Total Body or any organ. (I&P) | 1.68E-02 | 3.73E-02 | 6.85E-02 | 1.82E-02 |
| Total Body (Air) | 2.20E-04 | 2.80E-04 | 7.70E-04 | 1.80E-04 |
| Skin (Air) | 6.40E-04 | 5.30E-04 | 7.40E-03 | 7.70E-04 |
| Total Body (liquid) | 8.07E-03 | 4.17E-03 | 2.66E-03 | 2.28E-03 |
| Maximum organ (liquid) | 1.12E-02 | 4.29E-03 | 2.66E-03 | 2.29E-03 |
| Direct Radiation | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Total | 3.69E-02 | 4.66E-02 | 8.20E-02 | 2.37E-02 |
| Cumulative Total Dose (Total Body or any other organ) mrem | | | | 1.89E-01 |
| Annual Dose Limit (mrem) | | | | 2.50E+01 |
| Percent of Limit | | | | 7.57E-01 |

For individuals that are within the site boundary, the occupancy time is sufficiently low to compensate for any increase in the atmospheric diffusion factor above that for the site boundary.

VI. RADIATION MONITORS INOPERABLE GREATER THAN 30 DAYS

There were no radiation monitors inoperable for greater than 30 days while there was a release via that pathway.

VII. CONCLUSION

Based on the information presented in this report, it is concluded that the CNP Units 1 and 2 performed their intended design function with no demonstrable adverse affect on the health and safety of the general public.

2005 Effluent and Waste Disposal Annual Report

SUPPLEMENTAL INFORMATION

Facility: Donald C. Cook Nuclear Plant
Licensee: Indiana Michigan Power Company

1 REGULATORY LIMITS

1.1 Noble Gases

The air dose in unrestricted areas due to noble gases released in gaseous effluents shall be limited to the following:

1.1.1 During any calendar quarter, to ≤ 5 mrad for gamma radiation and ≤ 10 mrad for beta radiation.

1.1.2 During any calendar year, to ≤ 10 mrad for gamma radiation and ≤ 20 mrad for beta radiation.

1.2 Iodines - Particulates

The dose to a member of the public from radioiodines, radioactive materials in particulate form, and radionuclides other than noble gases with half-lives greater than eight days in gaseous effluents released to unrestricted areas shall be limited to the following:

1.2.1 During any calendar quarter to ≤ 7.5 mrem to any organ.

1.2.2 During any calendar year to ≤ 15 mrem to any organ.

1.3 Liquid Effluents

The dose or dose commitment to an individual from radioactive material in liquid effluents released to unrestricted areas shall be limited:

1.3.1 During any calendar quarter to ≤ 1.5 mrem to the total body and to ≤ 5 mrem to any organ.

1.3.2 During any calendar year to ≤ 3 mrem to the total body and to ≤ 10 mrem to any organ.

2005 Effluent and Waste Disposal Annual Report

1.4 Total Dose

The dose or dose commitment to a real individual from all uranium fuel cycle sources is limited to ≤ 25 mrem to the total body or any organ (except the thyroid, which is limited to ≤ 75 mrem) over a period of 12 consecutive months.

2 MAXIMUM PERMISSIBLE CONCENTRATIONS

2.1 Gaseous Effluents

The dose rate due to radioactive materials released in gaseous effluents from the site shall be limited to the following:

2.1.1 For noble gases: ≤ 500 mrem/yr to the total body and ≤ 3000 mrem/yr to the skin.

2.1.2 For all radioiodines and for all radioactive materials in particulate form and radionuclides (other than noble gases) with half-lives greater than eight days: ≤ 1500 mrem/yr to any organ.

The above limits are provided to insure that radioactive material discharged in gaseous effluents will not result in the exposure of an individual in an unrestricted area to annual average concentrations exceeding the limits in 10 CFR Part 20, Appendix B, Table 2, Column 1.

2.2 Liquid Effluents

The concentration of radioactive material released at any time from the site to unrestricted areas shall be limited to the concentrations specified in 10 CFR Part 20, Appendix B, Table 2, Column 2, for radionuclides other than dissolved or entrained noble gases. For dissolved or entrained noble gases, the concentration shall be limited to 2×10^{-4} $\mu\text{Ci/ml}$ total activity.

2005 Effluent and Waste Disposal Annual Report

3 AVERAGE ENERGY

The average energy (\bar{E}) of the radionuclide mixture in releases of fission and activation gases as defined in Regulatory Guide 1.21, Appendix B, Section A.3 is not applicable because the limits used for gaseous releases are based on calculated dose to members of the public.

4 MEASUREMENTS and APPROXIMATIONS of TOTAL RADIOACTIVITY

4.1 Fission and Activation Gases

Sampled and analyzed on a 4096 channel analyzer and HpGe detector. Tritium analysis is performed using liquid scintillation counter.

4.2 Iodines

Sampled on iodine adsorbing media and analyzed on a 4096 channel analyzer and HpGe detector.

4.3 Particulates

Sampled on a glass filter and analyzed on a 4096 channel analyzer and HpGe detector. Sr-89 and Sr-90 analyses performed by offsite vendor.

4.4 Liquid Effluents

Sampled and analyzed on a 4096 channel analyzer and HpGe detector. Tritium analysis is performed using liquid scintillation counter. Fe-55, Sr-89 and Sr-90 analyses performed by offsite vendor.

2005 Effluent and Waste Disposal Annual Report

5 BATCH RELEASES

5.1 Liquid

5.1.1 Number of batch releases:

16 releases in the 1st quarter, 2005
16 releases in the 2nd quarter, 2005
11 releases in the 3rd quarter, 2005
12 releases in the 4th quarter, 2005

5.1.2 Total time period for batch releases:

9449 minutes

5.1.3 Maximum time for a batch release:

265 minutes

5.1.4 Average time period for batch release:

172 minutes

5.1.5 Minimum time period for a batch release:

104 minutes

5.1.6 Average stream flow during periods of release of effluent into a flowing stream:

8.47E+5 gpm circulating water

2005 Effluent and Waste Disposal Annual Report

5.2 Gaseous

5.2.1 Number of batch releases:

68 releases in the 1st quarter, 2005
56 releases in the 2nd quarter, 2005
66 releases in the 3rd quarter, 2005
67 releases in the 4th quarter, 2005

5.2.2 Total time period for batch releases:

11815 minutes

5.2.3 Maximum time for a batch release:

408 minutes

5.2.4 Average time period for batch release:

46.0 minutes

5.2.5 Minimum time period for a batch release:

18 minutes

2005 Effluent and Waste Disposal Annual Report

6 ABNORMAL RELEASES

6.1 Liquid

6.1.1 Number of Releases:

| <u>1st Quarter</u> | <u>2nd Quarter</u> | <u>3rd Quarter</u> | <u>4th Quarter</u> |
|-------------------------------|-------------------------------|-------------------------------|-------------------------------|
| 0 | 0 | 0 | 0 |

6.1.2 Total activity released (Ci):

| <u>1st Quarter</u> | <u>2nd Quarter</u> | <u>3rd Quarter</u> | <u>4th Quarter</u> |
|-------------------------------|-------------------------------|-------------------------------|-------------------------------|
| 0 | 0 | 0 | 0 |

6.2 Gaseous

6.2.1 Number of Releases:

| <u>1st Quarter</u> | <u>2nd Quarter</u> | <u>3rd Quarter</u> | <u>4th Quarter</u> |
|-------------------------------|-------------------------------|-------------------------------|-------------------------------|
| 0 | 0 | 0 | 0 |

6.2.2 Total activity released (Ci):

| <u>1st Quarter</u> | <u>2nd Quarter</u> | <u>3rd Quarter</u> | <u>4th Quarter</u> |
|-------------------------------|-------------------------------|-------------------------------|-------------------------------|
| 0 | 0 | 0 | 0 |

2005 EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT
 GASEOUS EFFLUENTS-GROUND LEVEL RELEASES

CONTINUOUS MODE

| Nuclides Released | Unit | 1st Quarter | 2nd Quarter | 3rd Quarter | 4th Quarter |
|-------------------|------|-------------|-------------|-------------|-------------|
| 1. FISSION GASES | | | | | |
| H3 | Ci | 3.05E+01 | 4.09E+01 | 3.35E+01 | 2.59E+01 |
| KR85 | Ci | 4.83E-02 | ----- | 5.02E+00 | ----- |
| XE131m | Ci | 2.25E-02 | ----- | ----- | ----- |
| XE133m | Ci | 2.95E-02 | ----- | ----- | ----- |
| XE133 | Ci | 4.89E+00 | 1.86E+00 | ----- | ----- |
| XE135m | Ci | 2.34E-04 | ----- | ----- | ----- |
| XE135 | Ci | 1.97E-02 | ----- | ----- | ----- |
| Total for Period | Ci | 3.55E+01 | 4.28E+01 | 3.85E+01 | 2.59E+01 |

| Nuclides Released | Unit | 1st Quarter | 2nd Quarter | 3rd Quarter | 4th Quarter |
|-------------------|------|-------------|-------------|-------------|-------------|
| 2. IODINES | | | | | |
| I131 | Ci | 7.60E-06 | 5.43E-05 | ----- | ----- |
| I132 | Ci | ----- | ----- | ----- | ----- |
| Total for Period | Ci | 7.60E-06 | 5.43E-05 | ----- | ----- |

| | | | | | |
|------------------|----|----------|-------|-------|-------|
| 3. PARTICULATES | | | | | |
| CS137 | Ci | 1.93E-06 | ----- | ----- | ----- |
| Total for Period | Ci | 1.93E-06 | ----- | ----- | ----- |

* DENOTES SUPPLEMENTAL ISOTOPES

2005 EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT
GASEOUS EFFLUENTS-GROUND LEVEL RELEASES

. BATCH MODE

| Nuclides Released | Unit | 1st Quarter | 2nd Quarter | 3rd Quarter | 4th Quarter |
|-------------------|------|-------------|-------------|-------------|-------------|
| 1. FISSION GASES | | | | | |
| H3 | Ci | 2.02E-02 | 7.85E-02 | 1.41E-01 | 1.10E-01 |
| AR41 | Ci | 6.37E-02 | 9.99E-02 | 1.45E-01 | 6.42E-02 |
| KR85 | Ci | 5.61E-01 | 1.09E-01 | 3.06E-01 | 1.23E+00 |
| XE131M | Ci | 2.65E-02 | 1.28E-02 | ----- | 6.05E-03 |
| XE133M | Ci | 5.40E-03 | 1.86E-03 | ----- | 2.70E-03 |
| XE133 | Ci | 1.96E+00 | 9.70E-01 | 3.77E-01 | 9.85E-01 |
| XE135 | Ci | 9.80E-03 | 3.65E-03 | 3.55E-03 | 5.05E-03 |
| Total for Period | Ci | 2.65E+00 | 1.28E+00 | 9.73E-01 | 2.40E+00 |
| 2. IODINES | | | | | |
| I131 | Ci | ----- | 3.50E-08 | ----- | ----- |
| Total for Period | Ci | ----- | 3.50E-08 | ----- | ----- |
| 3. PARTICULATES | | | | | |
| CS137 | Ci | 5.89E-06 | ----- | ----- | ----- |
| Total for Period | Ci | 5.89E-06 | ----- | ----- | ----- |

2005 EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT
GASEOUS EFFLUENTS-SUMMATION OF ALL RELEASES

| | Units | 1st Quarter | 2nd Quarter | 3rd Quarter | 4th Quarter | Est. Total Error, % |
|------------------------------------|-----------------|----------------------|----------------------|----------------------|----------------------|---------------------------|
| A. FISSION AND ACTIVATION GASES | | | | | | |
| 1. Total Release | Ci | 7.65E+00 | 3.06E+00 | 5.85E+00 | 2.29E+00 | 21.5 |
| 2. Average release rate for period | uCi/sec | 9.84E-01 | 3.89E-01 | 7.36E-01 | 2.88E-01 | |
| 3. Percent of applicable limit | % Gamma Beta | 9.44E-03 1.55E-02 | 9.50E-03 4.32E-03 | 2.68E-02 9.93E-02 | 6.08E-03 9.83E-03 | |

| | | | | | | |
|------------------------------------|---------|----------|----------|----------|----------|------|
| B. IODINES | | | | | | |
| 1. Total I-131 | Ci | 7.60E-06 | 5.43E-05 | 0.00E+00 | 0.00E+00 | 13.6 |
| 2. Average release rate for period | uCi/sec | 9.77E-07 | 6.91E-06 | 0.00E+00 | 0.00E+00 | |
| 3. Percent of applicable limit | % | 2.24E-01 | 4.97E-01 | 0.00E+00 | 0.00E+00 | |

| | | | | | | |
|--|---------|-----------|-----------|-----------|-----------|------|
| C. PARTICULATES | | | | | | |
| 1. Particulates with half lives > 8 days | Ci | 7.82E-06 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 12.6 |
| 2. Average release rate for period | uCi/sec | 1.01E-06 | 0.00E+00 | 0.00E+00 | 0.00E+00 | |
| 3. Percent of applicable limit | % | 2.24E-01 | 0.00E+00 | 0.00E+00 | 0.00E+00 | |
| 4. Gross alpha radioactivity | Ci | <9.23E-07 | <9.04E-07 | <1.05E-06 | <1.14E-06 | |

| | | | | | | |
|------------------------------------|---------|----------|----------|----------|----------|------|
| D. TRITIUM | | | | | | |
| 1. Total Release | Ci | 3.05E+01 | 4.09E+01 | 3.37E+01 | 2.60E+01 | 10.8 |
| 2. Average release rate for period | uCi/sec | 3.92E+00 | 5.20E+00 | 4.24E+00 | 3.27E+00 | |
| 3. Percent of applicable limit | % | 2.24E-01 | 4.97E-01 | 9.13E-01 | 2.43E-01 | |

2005 EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT
LIQUID EFFLUENTS
CONTINUOUS MODE

| Nuclides Released | Unit | 1st Quarter | 2nd Quarter | 3rd Quarter | 4th Quarter |
|-------------------|------|-------------|-------------|-------------|-------------|
| H3 | Ci | 1.65E-01 | 7.32E-02 | 1.19E-01 | 1.98E-01 |

BATCH MODE

| Nuclides Released | Unit | 1st Quarter | 2nd Quarter | 3rd Quarter | 4th Quarter |
|-------------------|------|-------------|-------------|-------------|-------------|
| H3 | Ci | 1.43E+02 | 1.77E+02 | 1.16E+02 | 8.90E+01 |
| NA24 | Ci | 2.48E-06 | ----- | ----- | ----- |
| CR51 | Ci | ----- | 3.04E-04 | ----- | ----- |
| MN54 | Ci | 8.10E-05 | 5.79E-05 | 7.48E-07 | 1.52E-06 |
| FE55 | Ci | 1.45E-03 | 5.84E-04 | 2.79E-04 | ----- |
| FE59 | Ci | ----- | 8.93E-06 | ----- | ----- |
| CO57 | Ci | ----- | 4.31E-05 | 9.69E-06 | 1.87E-05 |
| CO58 | Ci | 1.06E-03 | 1.83E-02 | 1.90E-03 | 8.40E-04 |
| CO60 | Ci | 2.46E-03 | 1.26E-03 | 1.77E-04 | 1.93E-04 |
| ZN65 | Ci | 2.32E-04 | 1.66E-04 | ----- | ----- |
| ZR95 | Ci | 4.94E-05 | 2.28E-05 | ----- | ----- |
| NB95 | Ci | 9.27E-05 | 4.16E-05 | ----- | ----- |
| AG110M | Ci | 8.30E-05 | 3.77E-05 | ----- | ----- |
| SB124 | Ci | 1.27E-03 | 2.18E-04 | ----- | ----- |
| SB125 | Ci | 5.43E-03 | 1.16E-03 | 5.52E-05 | 5.13E-06 |
| I131 | Ci | ----- | 1.79E-06 | ----- | ----- |
| CS134 | Ci | 6.52E-05 | 3.97E-06 | ----- | ----- |
| CS137 | Ci | 2.91E-03 | 5.58E-05 | ----- | ----- |
| *SN113 | Ci | 9.06E-06 | ----- | ----- | ----- |
| *AG108M | Ci | 2.91E-06 | ----- | ----- | ----- |
| *SN117M | Ci | 1.88E-05 | ----- | ----- | ----- |
| *XE133 | Ci | 4.10E-05 | 9.91E-05 | ----- | ----- |

* DENOTES SUPPLEMENTAL ISOTOPES

2005 EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT
LIQUID EFFLUENTS-SUMMATION OF ALL RELEASES
BATCH MODE

| | | Units | 1st Quarter | 2nd Quarter | 3rd Quarter | 4th Quarter | Est. Total Error, % |
|-------|--|--------|----------------|----------------|----------------|----------------|---------------------------|
| ----- | | | | | | | |
| A. | FISSION AND ACTIVATION PRODUCTS | | | | | | |
| 1. | Total Release | Ci | 1.52E-02 | 2.23E-02 | 2.42E-03 | 1.06E-03 | 12.1 |
| 2. | Average diluted concentration during period | uCi/ml | 1.76E-09 | 2.55E-09 | 3.71E-10 | 1.65E-10 | |
| 3. | Percent of applicable limit | % | 4.99E-02 | 1.74E-02 | 2.44E-03 | 1.68E-03 | |
| ----- | | | | | | | |
| B. | TRITIUM | | | | | | |
| 1. | Total Release | Ci | 1.43E+02 | 1.77E+02 | 1.16E+02 | 8.90E+01 | 10.1 |
| 2. | Average diluted concentration during period | uCi/ml | 1.66E-05 | 2.03E-05 | 1.78E-05 | 1.38E-05 | |
| 3. | Percent of applicable limit | % | 1.66E+00 | 2.03E+00 | 1.78E+00 | 1.38E+00 | |
| ----- | | | | | | | |
| C. | DISSOLVED AND ENTRAINED GASES | | | | | | |
| 1. | Total Release | Ci | 4.10E-05 | 9.91E-05 | 0.00E+00 | 0.00E+00 | 14.7 |
| 2. | Average diluted concentration during period | uCi/ml | 4.76E-12 | 1.14E-11 | 0.00E+00 | 0.00E+00 | |
| 3. | Percent of applicable limit | % | 2.38E-06 | 5.68E-06 | 0.00E+00 | 0.00E+00 | |
| ----- | | | | | | | |
| D. | GROSS ALPHA RADIOACTIVITY TOTAL RELEASE | Ci | <7.92E-05 | <7.93E-05 | <5.91E-05 | <6.55E-05 | N/A |
| ----- | | | | | | | |
| E. | VOLUME OF WASTE RELEASED | Liters | 9.26E+05 | 9.27E+05 | 6.54E+05 | 7.18E+05 | 2.00 |
| ----- | | | | | | | |
| F. | VOLUME OF DILUTION WATER USED DURING PERIOD | Liters | 8.62E+09 | 8.72E+09 | 6.52E+09 | 6.44E+09 | 3.48 |
| ----- | | | | | | | |

2005 EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT
LIQUID EFFLUENTS-SUMMATION OF ALL RELEASES
CONTINUOUS MODE

| | | Units | 1st Quarter | 2nd Quarter | 3rd Quarter | 4th Quarter | Est. Total Error, % |
|----|--|--------|----------------|----------------|----------------|----------------|---------------------------|
| A. | FISSION AND ACTIVATION PRODUCTS | | | | | | |
| 1. | Total Release | Ci | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | N/A |
| 2. | Average diluted concentration during period | uCi/ml | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | |
| 3. | Percent of applicable limit | % | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | |
| B. | TRITIUM | | | | | | |
| 1. | Total Release | Ci | 1.65E-01 | 7.32E-02 | 1.19E-01 | 1.98E-01 | 11.7 |
| 2. | Average diluted concentration during period | uCi/ml | 2.23E-10 | 9.78E-11 | 1.38E-10 | 2.42E-10 | |
| 3. | Percent of applicable limit | % | 2.23E-05 | 9.78E-06 | 1.38E-05 | 2.42E-05 | |
| C. | DISSOLVED AND ENTRAINED GASES | | | | | | |
| 1. | Total Release | Ci | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | N/A |
| 2. | Average diluted concentration during period | uCi/ml | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | |
| 3. | Percent of applicable limit | % | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | |
| D. | GROSS ALPHA RADIOACTIVITY TOTAL RELEASE | Ci | <2.21E-02 | <2.25E-02 | <2.12E-02 | <2.99E-02 | N/A |
| E. | VOLUME OF WASTE RELEASED | Liters | 4.66E+07 | 3.20E+07 | 3.49E+07 | 4.83E+07 | 2.00 |
| F. | VOLUME OF DILUTION WATER USED DURING PERIOD | Liters | 7.40E+11 | 7.48E+11 | 8.58E+11 | 8.16E+11 | 3.48 |

2005 Effluent and Waste Disposal Annual Report Solid Waste and Irradiated Fuel Shipments

Solid Waste Shipped Offsite for Burial or Disposal

| 1) Type of Waste | Unit | Estimated amount | Estimated Total Error, % |
|--|--------------------------|----------------------|--------------------------|
| a) Spent resins, filters, sludge, evaporator bottoms, etc. | m ³ Curies | 1.88E+01 3.42E+02 | 1.00E+00 3.75E+00 |
| b) Dry compressible waste, contaminated equipment, etc. | m ³ Curies | 1.72E+02 1.23E+00 | 1.00E+00 6.48E+00 |
| c) Irradiated components, control rods, etc. | m ³ Curies | N/A | N/A |
| d) Other | m ³ Curies | N/A | N/A |

2) Estimate of Principle Radionuclide Composition

| | | | | | | |
|----|--------|------|-------|------|--------|-----|
| a) | Cs-134 | 2 % | Ni-63 | 37 % | Sb-125 | 1 % |
| | Cs-137 | 8 % | Co58 | 8 % | | |
| | Fe-55 | 18 % | H-3 | 3 % | | |
| | Co-60 | 19 % | Mn-54 | 4 % | | |
| b) | H-3 | 15 % | Mn-54 | 2 % | Fe-59 | 2 % |
| | Cs-137 | 5 % | Ni-63 | 26 % | Co-57 | 1 % |
| | Co-60 | 33 % | Fe-55 | 13 % | | |
| | Co-58 | 1 % | Nb-95 | 2 % | | |

3) Solid Waste Disposition

| No. of Shipments | Mode of Transportation | Destination |
|------------------|------------------------|--------------|
| 14 | Truck | Barnwell, SC |
| 54 | Truck | Clive, UT |

4) Type of Containers used for Shipment: Containers used are excepted packages, Type A, Sea Land, metal boxes, drums and high integrity containers.

5) Solidification Agent: There were no solidifications performed during this report period.

2005 Effluent and Waste Disposal Annual Report Yearly Release Rates

| GASES | | |
|---------------------------------|-------------------------------|---|
| Fission and Activation Gases | Total Release | 1.89E+01 Curies |
| | Average Release Rate | 5.98E-01 $\mu\text{Ci}/\text{sec}$ |
| | % of Applicable Limits | γ 2.59E-02 % β 6.45E-02 % |
| Iodines | Total I-131 Release | 6.19E-05 Curies |
| | Average Release Rate | 1.96E-06 $\mu\text{Ci}/\text{sec}$ |
| | % of Applicable Limit | 9.39E-01 % |
| Particulates | Total Release | 7.82E-06 Curies |
| | Average Release Rate | 2.48E-07 $\mu\text{Ci}/\text{sec}$ |
| | % of Applicable Limit | 9.39E-01 % |
| LIQUIDS | | |
| Fission and Activation Products | Total Release | 4.10E-02 Curies |
| | Average Diluted Concentration | 1.35E-9 $\mu\text{Ci}/\text{ml}$ |
| | % of Applicable Limits | Total Body 5.73E-01 % Organ 2.04E-01 % |

Site Boundary and Nearest Residence Listing

The following distances were used in the calculation of the maximum individual doses:

| <u>Sector</u> | <u>Direction</u> | <u>Boundary (Meters)</u> | <u>Nearest Residence (Meters)</u> |
|---------------|------------------|--------------------------|-----------------------------------|
| A | N | 651 | 659 |
| B | NNE | 617 | 660 |
| C | NE | 789 | 943 |
| D | ENE | 1497 | 1747 |
| E | E | 1274 | 1716 |
| F | ESE | 972 | 1643 |
| G | SE | 629 | 1640 |
| H | SSE | 594 | 964 |
| J | S | 594 | 997 |
| K | SSW | 629 | 942 |

Summary of Maximum Individual Doses

First Quarter 2005

| EFFLUENT | APPLICABLE ORGAN | ESTIMATED DOSE (mrem) | AGE GROUP | LOCATION DIST DIR (M) (Toward) | % OF APPLICABLE LIMIT | LIMIT (mrem) QTR |
|--------------------------|-----------------------|-----------------------|-----------|--------------------------------|-----------------------|------------------|
| Liquid | Total Body | 8.07E-03 | Adult | Receptor 1 | 5.38E-01 | 1.5E+0 |
| Liquid | Liver | 1.12E-02 | Child | Receptor 1 | 2.24E-01 | 5.0E+0 |
| Noble Gas | Air Dose (Gamma-mrad) | 4.72E-04 | Any Age | 594 (SSE) | 9.44E-03 | 5.0E+0 |
| Noble Gas | Air dose (Beta-mrad) | 1.55E-03 | Any Age | 629 (SSW) | 1.55E-02 | 1.0E+1 |
| Iodines and Particulates | Thyroid | 1.68E-02 | Child | 964 (SSE) | 2.24E-01 | 7.5E+0 |

Summary of Maximum Individual Doses

Second Quarter 2005

| EFFLUENT | APPLICABLE ORGAN | ESTIMATED DOSE (mrem) | AGE GROUP | LOCATION DIST DIR (M) (Toward) | % OF APPLICABLE LIMIT | LIMIT (mrem) QTR |
|--------------------------|-----------------------|-----------------------|-----------|--------------------------------|-----------------------|------------------|
| Liquid | Total Body | 4.17E-03 | Child | Receptor 1 | 2.78E-01 | 1.5E+0 |
| Liquid | Liver | 4.29E-03 | Child | Receptor 1 | 8.58E-02 | 5.0E+0 |
| Noble Gas | Air Dose (Gamma-mrad) | 4.75E-04 | Any Age | 651 (N) | 9.50E-03 | 5.0E+0 |
| Noble Gas | Air dose (Beta-mrad) | 4.32E-04 | Any Age | 594 (S) | 4.32E-03 | 1.0E+1 |
| Iodines and Particulates | Thyroid | 3.73E-02 | Child | 964 (SSE) | 4.97E-01 | 7.5E+0 |

Summary of Maximum Individual Doses

Third Quarter 2005

| EFFLUENT | APPLICABLE ORGAN | ESTIMATED DOSE (mrem) | AGE GROUP | LOCATION DIST DIR (M) (Toward) | % OF APPLICABLE LIMIT | LIMIT (mrem) QTR |
|--------------------------|-----------------------|-----------------------|-----------|--------------------------------|-----------------------|------------------|
| Liquid | Total Body | 2.66E-03 | Child | Receptor 1 | 1.77E-01 | 1.5E+0 |
| Liquid | GI-Tract | 2.66E-03 | Child | Receptor 1 | 5.32E-02 | 5.0E+0 |
| Noble Gas | Air Dose (Gamma-mrad) | 1.34E-03 | Any Age | 651 (N) | 2.68E-02 | 5.0E+0 |
| Noble Gas | Air dose (Beta-mrad) | 9.93E-03 | Any Age | 651 (N) | 9.93E-02 | 1.0E+1 |
| Iodines and Particulates | Total Body | 6.85E-02 | Child | 659 (N) | 9.13E-01 | 7.5E+0 |

Summary of Maximum Individual Doses

Fourth Quarter 2005

| EFFLUENT | APPLICABLE ORGAN | ESTIMATED DOSE (mrem) | AGE GROUP | LOCATION DIST DIR (M) (Toward) | % OF APPLICABLE LIMIT | LIMIT (mrem) QTR |
|--------------------------|-----------------------|-----------------------|-----------|--------------------------------|-----------------------|------------------|
| Liquid | Total Body | 2.28E-03 | Child | Receptor 1 | 1.52E-01 | 1.5E+0 |
| Liquid | GI-Tract | 2.29E-03 | Child | Receptor 1 | 4.58E-02 | 5.0E+0 |
| Noble Gas | Air Dose (Gamma-mrad) | 3.04E-04 | Any Age | 651 (N) | 6.08E-03 | 5.0E+0 |
| Noble Gas | Air dose (Beta-mrad) | 9.83E-04 | Any Age | 651 (N) | 9.83E-03 | 1.0E+1 |
| Iodines and Particulates | Total Body | 1.82E-02 | Child | 659 (N) | 2.43E-01 | 7.5E+0 |

SITE: AEP COOK

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD: 1/1/05 - 3/31/05
STABILITY CLASS: A DT/DZ
ELEVATION: SPEED:SP10M DIRECTION:DIR10M LAPSE:DT60M

| WIND DIRECTION | WIND SPEED (MPH) | | | | | | TOTAL |
|-------------------|------------------|-----|------|-------|-------|-----|-------|
| | 1-4 | 4-8 | 8-13 | 13-19 | 19-25 | >25 | |
| N | 2 | 14 | 0 | 0 | 0 | 0 | 16 |
| NNE | 3 | 6 | 1 | 0 | 0 | 0 | 10 |
| NE | 2 | 11 | 5 | 0 | 0 | 0 | 18 |
| ENE | 3 | 13 | 8 | 0 | 0 | 0 | 24 |
| E | 1 | 23 | 1 | 0 | 0 | 0 | 25 |
| ESE | 2 | 11 | 0 | 0 | 0 | 0 | 13 |
| SE | 3 | 13 | 10 | 0 | 0 | 0 | 26 |
| SSE | 0 | 21 | 13 | 5 | 0 | 0 | 39 |
| S | 1 | 1 | 7 | 2 | 0 | 0 | 11 |
| SSW | 0 | 2 | 0 | 0 | 0 | 0 | 2 |
| SW | 0 | 10 | 4 | 1 | 0 | 0 | 15 |
| WSW | 1 | 19 | 13 | 1 | 0 | 0 | 34 |
| W | 0 | 13 | 3 | 0 | 0 | 0 | 16 |
| WNW | 2 | 17 | 5 | 0 | 0 | 0 | 24 |
| NW | 3 | 39 | 5 | 0 | 0 | 0 | 47 |
| NNW | 1 | 38 | 14 | 0 | 0 | 0 | 53 |
| TOTAL | 24 | 251 | 89 | 9 | 0 | 0 | 373 |

PERIODS OF CALM(HOURS): 2
VARIABLE DIRECTION: 0
HOURS OF MISSING DATA: 2

SITE: AEP COOK

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD: 1/1/05 - 3/31/05
STABILITY CLASS: B DT/DZ
ELEVATION: SPEED:SP10M DIRECTION:DIR10M LAPSE:DT60M

| WIND DIRECTION | WIND SPEED (MPH) | | | | | | TOTAL |
|-------------------|------------------|-----|------|-------|-------|-----|-------|
| | 1-4 | 4-8 | 8-13 | 13-19 | 19-25 | >25 | |
| N | 1 | 4 | 4 | 0 | 0 | 0 | 9 |
| NNE | 0 | 4 | 0 | 0 | 0 | 0 | 4 |
| NE | 0 | 8 | 4 | 0 | 0 | 0 | 12 |
| ENE | 3 | 7 | 4 | 0 | 0 | 0 | 14 |
| E | 2 | 9 | 0 | 0 | 0 | 0 | 11 |
| ESE | 1 | 2 | 0 | 0 | 0 | 0 | 3 |
| SE | 1 | 0 | 1 | 0 | 0 | 0 | 2 |
| SSE | 1 | 7 | 1 | 0 | 0 | 0 | 9 |
| S | 0 | 5 | 6 | 1 | 0 | 0 | 12 |
| SSW | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| SW | 1 | 3 | 2 | 0 | 0 | 0 | 6 |
| WSW | 0 | 3 | 3 | 0 | 0 | 0 | 6 |
| W | 1 | 7 | 1 | 0 | 0 | 0 | 9 |
| WNW | 2 | 4 | 1 | 0 | 0 | 0 | 7 |
| NW | 4 | 5 | 5 | 0 | 0 | 0 | 14 |
| NNW | 0 | 9 | 1 | 0 | 0 | 0 | 10 |
| TOTAL | 17 | 77 | 33 | 1 | 0 | 0 | 128 |

PERIODS OF CALM(HOURS) : 2
VARIABLE DIRECTION: 0
HOURS OF MISSING DATA: 2

SITE: AEP COOK

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD: 1/1/05 - 3/31/05
STABILITY CLASS: C DT/DZ
ELEVATION: SPEED:SP10M DIRECTION:DIR10M LAPSE:DT60M

WIND SPEED (MPH)

| WIND DIRECTION | 1-4 | 4-8 | 8-13 | 13-19 | 19-25 | >25 | TOTAL |
|-------------------|-----|-----|------|-------|-------|-----|-------|
| N | 2 | 13 | 3 | 0 | 0 | 0 | 18 |
| NNE | 1 | 1 | 1 | 0 | 0 | 0 | 3 |
| NE | 2 | 3 | 7 | 0 | 0 | 0 | 12 |
| ENE | 2 | 3 | 3 | 0 | 0 | 0 | 8 |
| E | 0 | 4 | 0 | 0 | 0 | 0 | 4 |
| ESE | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| SE | 2 | 2 | 1 | 0 | 0 | 0 | 5 |
| SSE | 0 | 3 | 0 | 0 | 0 | 0 | 3 |
| S | 0 | 7 | 5 | 0 | 0 | 0 | 12 |
| SSW | 0 | 0 | 1 | 0 | 0 | 0 | 1 |
| SW | 2 | 2 | 4 | 0 | 0 | 0 | 8 |
| WSW | 0 | 8 | 4 | 0 | 0 | 0 | 12 |
| W | 1 | 6 | 2 | 0 | 0 | 0 | 9 |
| WNW | 1 | 8 | 2 | 0 | 0 | 0 | 11 |
| NW | 3 | 14 | 5 | 0 | 0 | 0 | 22 |
| NNW | 7 | 16 | 7 | 0 | 0 | 0 | 30 |
| TOTAL | 23 | 90 | 45 | 0 | 0 | 0 | 158 |

PERIODS OF CALM(HOURS): 2
VARIABLE DIRECTION: 0
HOURS OF MISSING DATA: 2

SITE: AEP COOK

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD: 1/1/05 - 3/31/05
STABILITY CLASS: D DT/DZ
ELEVATION: SPEED:SP10M DIRECTION:DIR10M LAPSE:DT60M

| WIND DIRECTION | WIND SPEED (MPH) | | | | | | TOTAL |
|-------------------|------------------|-----|------|-------|-------|-----|-------|
| | 1-4 | 4-8 | 8-13 | 13-19 | 19-25 | >25 | |
| N | 27 | 36 | 17 | 0 | 0 | 0 | 80 |
| NNE | 17 | 12 | 5 | 0 | 0 | 0 | 34 |
| NE | 11 | 29 | 10 | 0 | 0 | 0 | 50 |
| ENE | 9 | 37 | 17 | 0 | 0 | 0 | 63 |
| E | 19 | 25 | 2 | 0 | 0 | 0 | 46 |
| ESE | 17 | 30 | 13 | 0 | 0 | 0 | 60 |
| SE | 13 | 27 | 5 | 0 | 0 | 0 | 45 |
| SSE | 7 | 14 | 3 | 3 | 0 | 0 | 27 |
| S | 7 | 33 | 12 | 13 | 0 | 0 | 65 |
| SSW | 6 | 8 | 18 | 10 | 0 | 0 | 42 |
| SW | 5 | 12 | 20 | 2 | 0 | 0 | 39 |
| WSW | 5 | 12 | 15 | 1 | 0 | 0 | 33 |
| W | 7 | 11 | 7 | 0 | 0 | 0 | 25 |
| WNW | 9 | 25 | 14 | 0 | 0 | 0 | 48 |
| NW | 9 | 61 | 17 | 0 | 0 | 0 | 87 |
| NNW | 17 | 83 | 20 | 0 | 0 | 0 | 120 |
| TOTAL | 185 | 455 | 195 | 29 | 0 | 0 | 864 |

PERIODS OF CALM(HOURS): 2
VARIABLE DIRECTION: 0
HOURS OF MISSING DATA: 2

SITE: AEP COOK

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD: 1/1/05 - 3/31/05
STABILITY CLASS: E DT/DZ
ELEVATION: SPEED:SP10M DIRECTION:DIR10M LAPSE:DT60M

WIND SPEED (MPH)

| WIND DIRECTION | 1-4 | 4-8 | 8-13 | 13-19 | 19-25 | >25 | TOTAL |
|-------------------|-----|-----|------|-------|-------|-----|-------|
| N | 12 | 14 | 1 | 0 | 0 | 0 | 27 |
| NNE | 13 | 4 | 0 | 0 | 0 | 0 | 17 |
| NE | 19 | 11 | 0 | 0 | 0 | 0 | 30 |
| ENE | 10 | 23 | 0 | 0 | 0 | 0 | 33 |
| E | 17 | 20 | 1 | 0 | 0 | 0 | 38 |
| ESE | 16 | 20 | 7 | 0 | 0 | 0 | 43 |
| SE | 22 | 24 | 14 | 0 | 0 | 0 | 60 |
| SSE | 14 | 36 | 6 | 0 | 0 | 0 | 56 |
| S | 11 | 15 | 4 | 2 | 0 | 0 | 32 |
| SSW | 3 | 3 | 7 | 2 | 0 | 0 | 15 |
| SW | 3 | 8 | 3 | 0 | 0 | 0 | 14 |
| WSW | 5 | 4 | 10 | 0 | 0 | 0 | 19 |
| W | 3 | 2 | 1 | 0 | 0 | 0 | 6 |
| WNW | 2 | 4 | 0 | 0 | 0 | 0 | 6 |
| NW | 5 | 2 | 0 | 0 | 0 | 0 | 7 |
| NNW | 13 | 19 | 4 | 0 | 0 | 0 | 36 |
| TOTAL | 168 | 209 | 58 | 4 | 0 | 0 | 439 |

PERIODS OF CALM(HOURS): 2
VARIABLE DIRECTION: 0
HOURS OF MISSING DATA: 2

SITE: AEP COOK

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD: 1/1/05 - 3/31/05
STABILITY CLASS: F DT/DZ
ELEVATION: SPEED:SP10M DIRECTION:DIR10M LAPSE:DT60M

| WIND DIRECTION | WIND SPEED (MPH) | | | | | | TOTAL |
|-------------------|------------------|-----|------|-------|-------|-----|-------|
| | 1-4 | 4-8 | 8-13 | 13-19 | 19-25 | >25 | |
| N | 3 | 1 | 0 | 0 | 0 | 0 | 4 |
| NNE | 5 | 0 | 0 | 0 | 0 | 0 | 5 |
| NE | 4 | 1 | 0 | 0 | 0 | 0 | 5 |
| ENE | 5 | 1 | 0 | 0 | 0 | 0 | 6 |
| E | 8 | 6 | 0 | 0 | 0 | 0 | 14 |
| ESE | 12 | 0 | 0 | 0 | 0 | 0 | 12 |
| SE | 9 | 5 | 0 | 0 | 0 | 0 | 14 |
| SSE | 8 | 14 | 0 | 0 | 0 | 0 | 22 |
| S | 9 | 3 | 3 | 0 | 0 | 0 | 15 |
| SSW | 3 | 0 | 1 | 0 | 0 | 0 | 4 |
| SW | 2 | 0 | 0 | 0 | 0 | 0 | 2 |
| WSW | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| W | 3 | 0 | 0 | 0 | 0 | 0 | 3 |
| WNW | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| NW | 2 | 0 | 0 | 0 | 0 | 0 | 2 |
| NNW | 3 | 1 | 0 | 0 | 0 | 0 | 4 |
| TOTAL | 78 | 32 | 4 | 0 | 0 | 0 | 114 |

PERIODS OF CALM(HOURS) : 2
VARIABLE DIRECTION: 0
HOURS OF MISSING DATA: 2

SITE: AEP COOK

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD: 1/1/05 - 3/31/05
STABILITY CLASS: G DT/DZ
ELEVATION: SPEED:SP10M DIRECTION:DIR10M LAPSE:DT60M

WIND SPEED (MPH)

| WIND DIRECTION | 1-4 | 4-8 | 8-13 | 13-19 | 19-25 | >25 | TOTAL |
|-------------------|-----|-----|------|-------|-------|-----|-------|
| N | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| NNE | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| NE | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| ENE | 8 | 0 | 0 | 0 | 0 | 0 | 8 |
| E | 10 | 1 | 0 | 0 | 0 | 0 | 11 |
| ESE | 8 | 0 | 0 | 0 | 0 | 0 | 8 |
| SE | 18 | 1 | 0 | 0 | 0 | 0 | 19 |
| SSE | 23 | 2 | 0 | 0 | 0 | 0 | 25 |
| S | 6 | 0 | 0 | 0 | 0 | 0 | 6 |
| SSW | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| SW | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| WSW | 2 | 0 | 0 | 0 | 0 | 0 | 2 |
| W | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| WNW | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| NW | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| NNW | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TOTAL | 76 | 4 | 0 | 0 | 0 | 0 | 80 |

PERIODS OF CALM(HOURS): 2
VARIABLE DIRECTION: 0
HOURS OF MISSING DATA: 2

SITE: AEP COOK

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD: 1/1/05 - 3/31/05
STABILITY CLASS: ALL DT/DZ
ELEVATION: SPEED:SP10M DIRECTION:DIR10M LAPSE:DT60M

| WIND DIRECTION | WIND SPEED (MPH) | | | | | | TOTAL |
|-------------------|------------------|------|------|-------|-------|-----|-------|
| | 1-4 | 4-8 | 8-13 | 13-19 | 19-25 | >25 | |
| N | 47 | 82 | 25 | 0 | 0 | 0 | 154 |
| NNE | 39 | 27 | 7 | 0 | 0 | 0 | 73 |
| NE | 39 | 63 | 26 | 0 | 0 | 0 | 128 |
| ENE | 40 | 84 | 32 | 0 | 0 | 0 | 156 |
| E | 57 | 88 | 4 | 0 | 0 | 0 | 149 |
| ESE | 56 | 63 | 20 | 0 | 0 | 0 | 139 |
| SE | 68 | 72 | 31 | 0 | 0 | 0 | 171 |
| SSE | 53 | 97 | 23 | 8 | 0 | 0 | 181 |
| S | 34 | 64 | 37 | 18 | 0 | 0 | 153 |
| SSW | 12 | 13 | 27 | 12 | 0 | 0 | 64 |
| SW | 13 | 35 | 33 | 3 | 0 | 0 | 84 |
| WSW | 14 | 46 | 45 | 2 | 0 | 0 | 107 |
| W | 15 | 39 | 14 | 0 | 0 | 0 | 68 |
| WNW | 17 | 58 | 22 | 0 | 0 | 0 | 97 |
| NW | 26 | 121 | 32 | 0 | 0 | 0 | 179 |
| NNW | 41 | 166 | 46 | 0 | 0 | 0 | 253 |
| TOTAL | 571 | 1118 | 424 | 43 | 0 | 0 | 2156 |

PERIODS OF CALM(HOURS): 2
VARIABLE DIRECTION: 0
HOURS OF MISSING DATA: 2

SITE: AEP COOK

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD: 4/1/05 - 6/30/05
STABILITY CLASS: A DT/DZ
ELEVATION: SPEED:SP10M DIRECTION:DIR10M LAPSE:DT60M

| WIND DIRECTION | WIND SPEED (MPH) | | | | | | TOTAL |
|-------------------|------------------|-----|------|-------|-------|-----|-------|
| | 1-3 | 4-7 | 8-12 | 13-18 | 19-24 | >24 | |
| N | 9 | 46 | 8 | 0 | 0 | 0 | 63 |
| NNE | 3 | 5 | 0 | 0 | 0 | 0 | 8 |
| NE | 0 | 5 | 4 | 0 | 0 | 0 | 9 |
| ENE | 3 | 12 | 8 | 0 | 0 | 0 | 23 |
| E | 2 | 12 | 5 | 0 | 0 | 0 | 19 |
| ESE | 4 | 20 | 9 | 0 | 0 | 0 | 33 |
| SE | 4 | 21 | 1 | 0 | 0 | 0 | 26 |
| SSE | 1 | 23 | 5 | 0 | 0 | 0 | 29 |
| S | 5 | 31 | 21 | 4 | 0 | 0 | 61 |
| SSW | 3 | 23 | 17 | 0 | 0 | 0 | 43 |
| SW | 2 | 41 | 27 | 0 | 0 | 0 | 70 |
| WSW | 1 | 33 | 14 | 0 | 0 | 0 | 48 |
| W | 3 | 51 | 8 | 0 | 0 | 0 | 62 |
| WNW | 4 | 38 | 4 | 0 | 0 | 0 | 46 |
| NW | 11 | 29 | 0 | 0 | 0 | 0 | 40 |
| NNW | 14 | 125 | 13 | 0 | 0 | 0 | 152 |
| TOTAL | 69 | 515 | 144 | 4 | 0 | 0 | 732 |

PERIODS OF CALM(HOURS): 1
VARIABLE DIRECTION: 0
HOURS OF MISSING DATA: 11

SITE: AEP COOK

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD: 4/1/05 - 6/30/05
STABILITY CLASS: B DT/DZ
ELEVATION: SPEED:SP10M DIRECTION:DIR10M LAPSE:DT60M

| WIND DIRECTION | WIND SPEED (MPH) | | | | | | TOTAL |
|-------------------|------------------|-----|------|-------|-------|-----|-------|
| | 1-3 | 4-7 | 8-12 | 13-18 | 19-24 | >24 | |
| N | 5 | 8 | 0 | 1 | 0 | 0 | 14 |
| NNE | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| NE | 1 | 0 | 1 | 0 | 0 | 0 | 2 |
| ENE | 1 | 0 | 1 | 0 | 0 | 0 | 2 |
| E | 1 | 5 | 2 | 0 | 0 | 0 | 8 |
| ESE | 0 | 2 | 2 | 0 | 0 | 0 | 4 |
| SE | 1 | 3 | 1 | 0 | 0 | 0 | 5 |
| SSE | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| S | 1 | 4 | 2 | 0 | 0 | 0 | 7 |
| SSW | 0 | 2 | 2 | 1 | 0 | 0 | 5 |
| SW | 4 | 9 | 2 | 0 | 0 | 0 | 15 |
| WSW | 0 | 5 | 1 | 0 | 0 | 0 | 6 |
| W | 0 | 2 | 1 | 0 | 0 | 0 | 3 |
| WNW | 1 | 4 | 0 | 0 | 0 | 0 | 5 |
| NW | 2 | 1 | 0 | 0 | 0 | 0 | 3 |
| NNW | 0 | 2 | 1 | 1 | 0 | 0 | 4 |
| TOTAL | 17 | 49 | 16 | 3 | 0 | 0 | 85 |

PERIODS OF CALM(HOURS): 1
VARIABLE DIRECTION: 0
HOURS OF MISSING DATA: 11

SITE: AEP COOK

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD: 4/1/05 - 6/30/05
STABILITY CLASS: C DT/DZ
ELEVATION: SPEED:SP10M DIRECTION:DIR10M LAPSE:DT60M

| WIND DIRECTION | WIND SPEED (MPH) | | | | | | TOTAL |
|-------------------|------------------|-----|------|-------|-------|-----|-------|
| | 1-3 | 4-7 | 8-12 | 13-18 | 19-24 | >24 | |
| N | 4 | 5 | 1 | 1 | 0 | 0 | 11 |
| NNE | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| NE | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| ENE | 0 | 1 | 1 | 0 | 0 | 0 | 2 |
| E | 0 | 0 | 1 | 0 | 0 | 0 | 1 |
| ESE | 0 | 1 | 1 | 0 | 0 | 0 | 2 |
| SE | 0 | 7 | 0 | 0 | 0 | 0 | 7 |
| SSE | 1 | 1 | 0 | 0 | 0 | 0 | 2 |
| S | 0 | 9 | 1 | 0 | 0 | 0 | 10 |
| SSW | 1 | 1 | 1 | 0 | 0 | 0 | 3 |
| SW | 0 | 4 | 1 | 0 | 0 | 0 | 5 |
| WSW | 2 | 1 | 1 | 0 | 0 | 0 | 4 |
| W | 2 | 2 | 1 | 0 | 0 | 0 | 5 |
| WNW | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| NW | 3 | 1 | 0 | 0 | 0 | 0 | 4 |
| NNW | 2 | 3 | 4 | 3 | 0 | 0 | 12 |
| TOTAL | 15 | 38 | 13 | 4 | 0 | 0 | 70 |

PERIODS OF CALM(HOURS): 1
VARIABLE DIRECTION: 0
HOURS OF MISSING DATA: 11

SITE: AEP COOK

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD: 4/1/05 - 6/30/05
STABILITY CLASS: D DT/DZ
ELEVATION: SPEED:SP10M DIRECTION:DIR10M LAPSE:DT60M

| WIND DIRECTION | WIND SPEED (MPH) | | | | | | TOTAL |
|-------------------|------------------|-----|------|-------|-------|-----|-------|
| | 1-3 | 4-7 | 8-12 | 13-18 | 19-24 | >24 | |
| N | 13 | 21 | 19 | 3 | 0 | 0 | 56 |
| NNE | 3 | 8 | 0 | 0 | 0 | 0 | 11 |
| NE | 5 | 6 | 5 | 0 | 0 | 0 | 16 |
| ENE | 9 | 19 | 6 | 0 | 0 | 0 | 34 |
| E | 4 | 4 | 10 | 2 | 0 | 0 | 20 |
| ESE | 2 | 18 | 18 | 0 | 0 | 0 | 38 |
| SE | 1 | 9 | 3 | 0 | 0 | 0 | 13 |
| SSE | 1 | 7 | 0 | 0 | 0 | 0 | 8 |
| S | 3 | 18 | 7 | 0 | 0 | 0 | 28 |
| SSW | 4 | 10 | 24 | 0 | 0 | 0 | 38 |
| SW | 10 | 20 | 13 | 1 | 0 | 0 | 44 |
| WSW | 7 | 13 | 4 | 0 | 0 | 0 | 24 |
| W | 2 | 21 | 7 | 0 | 0 | 0 | 30 |
| WNW | 5 | 6 | 1 | 0 | 0 | 0 | 12 |
| NW | 5 | 5 | 0 | 0 | 0 | 0 | 10 |
| NNW | 13 | 11 | 15 | 2 | 0 | 0 | 41 |
| TOTAL | 87 | 196 | 132 | 8 | 0 | 0 | 423 |

PERIODS OF CALM(HOURS): 1
VARIABLE DIRECTION: 0
HOURS OF MISSING DATA: 11

SITE: AEP COOK

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD: 4/1/05 - 6/30/05
STABILITY CLASS: E DT/DZ
ELEVATION: SPEED:SP10M DIRECTION:DIR10M LAPSE:DT60M

| WIND DIRECTION | WIND SPEED (MPH) | | | | | | TOTAL |
|-------------------|------------------|-----|------|-------|-------|-----|-------|
| | 1-3 | 4-7 | 8-12 | 13-18 | 19-24 | >24 | |
| N | 15 | 14 | 0 | 0 | 0 | 0 | 29 |
| NNE | 8 | 3 | 0 | 0 | 0 | 0 | 11 |
| NE | 11 | 5 | 1 | 0 | 0 | 0 | 17 |
| ENE | 10 | 14 | 1 | 0 | 0 | 0 | 25 |
| E | 12 | 14 | 3 | 0 | 0 | 0 | 29 |
| ESE | 19 | 19 | 0 | 0 | 0 | 0 | 38 |
| SE | 12 | 15 | 0 | 0 | 0 | 0 | 27 |
| SSE | 18 | 11 | 0 | 0 | 0 | 0 | 29 |
| S | 27 | 48 | 3 | 0 | 0 | 0 | 78 |
| SSW | 10 | 14 | 2 | 0 | 0 | 0 | 26 |
| SW | 8 | 30 | 0 | 0 | 0 | 0 | 38 |
| WSW | 3 | 3 | 1 | 0 | 0 | 0 | 7 |
| W | 4 | 8 | 1 | 0 | 0 | 0 | 13 |
| WNW | 4 | 1 | 0 | 0 | 0 | 0 | 5 |
| NW | 5 | 5 | 0 | 0 | 0 | 0 | 10 |
| NNW | 12 | 16 | 1 | 0 | 0 | 0 | 29 |
| TOTAL | 178 | 220 | 13 | 0 | 0 | 0 | 411 |

PERIODS OF CALM(HOURS): 1
VARIABLE DIRECTION: 0
HOURS OF MISSING DATA: 11

SITE: AEP COOK

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD: 4/1/05 - 6/30/05
STABILITY CLASS: F DT/DZ
ELEVATION: SPEED:SP10M DIRECTION:DIR10M LAPSE:DT60M

WIND SPEED (MPH)

| WIND DIRECTION | 1-3 | 4-7 | 8-12 | 13-18 | 19-24 | >24 | TOTAL |
|----------------|-----|-----|------|-------|-------|-----|-------|
| N | 5 | 0 | 0 | 0 | 0 | 0 | 5 |
| NNE | 11 | 0 | 0 | 0 | 0 | 0 | 11 |
| NE | 11 | 2 | 0 | 0 | 0 | 0 | 13 |
| ENE | 14 | 1 | 0 | 0 | 0 | 0 | 15 |
| E | 23 | 5 | 0 | 0 | 0 | 0 | 28 |
| ESE | 32 | 4 | 0 | 0 | 0 | 0 | 36 |
| SE | 18 | 11 | 0 | 0 | 0 | 0 | 29 |
| SSE | 18 | 16 | 0 | 0 | 0 | 0 | 34 |
| S | 10 | 11 | 1 | 0 | 0 | 0 | 22 |
| SSW | 7 | 3 | 0 | 0 | 0 | 0 | 10 |
| SW | 6 | 2 | 0 | 0 | 0 | 0 | 8 |
| WSW | 4 | 0 | 1 | 0 | 0 | 0 | 5 |
| W | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| WNW | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| NW | 2 | 2 | 0 | 0 | 0 | 0 | 4 |
| NNW | 8 | 0 | 0 | 0 | 0 | 0 | 8 |
| TOTAL | 171 | 57 | 2 | 0 | 0 | 0 | 230 |

PERIODS OF CALM(HOURS): 1
VARIABLE DIRECTION: 0
HOURS OF MISSING DATA: 11

SITE: AEP COOK

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD: 4/1/05 - 6/30/05
STABILITY CLASS: G DT/DZ
ELEVATION: SPEED:SP10M DIRECTION:DIR10M LAPSE:DT60M

| WIND DIRECTION | WIND SPEED (MPH) | | | | | | TOTAL |
|-------------------|------------------|-----|------|-------|-------|-----|-------|
| | 1-3 | 4-7 | 8-12 | 13-18 | 19-24 | >24 | |
| N | 4 | 0 | 0 | 0 | 0 | 0 | 4 |
| NNE | 2 | 0 | 0 | 0 | 0 | 0 | 2 |
| NE | 9 | 0 | 0 | 0 | 0 | 0 | 9 |
| ENE | 19 | 1 | 0 | 0 | 0 | 0 | 20 |
| E | 36 | 0 | 0 | 0 | 0 | 0 | 36 |
| ESE | 32 | 0 | 0 | 0 | 0 | 0 | 32 |
| SE | 20 | 2 | 0 | 0 | 0 | 0 | 22 |
| SSE | 29 | 4 | 0 | 0 | 0 | 0 | 33 |
| S | 28 | 2 | 0 | 0 | 0 | 0 | 30 |
| SSW | 14 | 1 | 0 | 0 | 0 | 0 | 15 |
| SW | 3 | 1 | 0 | 0 | 0 | 0 | 4 |
| WSW | 6 | 0 | 0 | 0 | 0 | 0 | 6 |
| W | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| WNW | 3 | 0 | 0 | 0 | 0 | 0 | 3 |
| NW | 2 | 0 | 0 | 0 | 0 | 0 | 2 |
| NNW | 2 | 0 | 0 | 0 | 0 | 0 | 2 |
| TOTAL | 210 | 11 | 0 | 0 | 0 | 0 | 221 |

PERIODS OF CALM(HOURS): 1
VARIABLE DIRECTION: 0
HOURS OF MISSING DATA: 11

SITE: AEP COOK

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD: 4/1/05 - 6/30/05
STABILITY CLASS: ALL DT/DZ
ELEVATION: SPEED:SP10M DIRECTION:DIR10M LAPSE:DT60M

| WIND DIRECTION | WIND SPEED (MPH) | | | | | | TOTAL |
|-------------------|------------------|------|------|-------|-------|-----|-------|
| | 1-3 | 4-7 | 8-12 | 13-18 | 19-24 | >24 | |
| N | 55 | 94 | 28 | 5 | 0 | 0 | 182 |
| NNE | 27 | 18 | 0 | 0 | 0 | 0 | 45 |
| NE | 37 | 18 | 11 | 0 | 0 | 0 | 66 |
| ENE | 56 | 48 | 17 | 0 | 0 | 0 | 121 |
| E | 78 | 40 | 21 | 2 | 0 | 0 | 141 |
| ESE | 89 | 64 | 30 | 0 | 0 | 0 | 183 |
| SE | 56 | 68 | 5 | 0 | 0 | 0 | 129 |
| SSE | 68 | 63 | 5 | 0 | 0 | 0 | 136 |
| S | 74 | 123 | 35 | 4 | 0 | 0 | 236 |
| SSW | 39 | 54 | 46 | 1 | 0 | 0 | 140 |
| SW | 33 | 107 | 43 | 1 | 0 | 0 | 184 |
| WSW | 23 | 55 | 22 | 0 | 0 | 0 | 100 |
| W | 13 | 84 | 18 | 0 | 0 | 0 | 115 |
| WNW | 18 | 50 | 5 | 0 | 0 | 0 | 73 |
| NW | 30 | 43 | 0 | 0 | 0 | 0 | 73 |
| NNW | 51 | 157 | 34 | 6 | 0 | 0 | 248 |
| TOTAL | 747 | 1086 | 320 | 19 | 0 | 0 | 2172 |

PERIODS OF CALM(HOURS): 1
VARIABLE DIRECTION: 0
HOURS OF MISSING DATA: 11

SITE: AEP COOK

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD: 7/1/05 - 9/30/05
STABILITY CLASS: A DT/DZ
ELEVATION: SPEED:SP10M DIRECTION:DIR10M LAPSE:DT60M

| WIND DIRECTION | WIND SPEED (MPH) | | | | | | TOTAL |
|-------------------|------------------|-----|------|-------|-------|-----|-------|
| | 1-3 | 4-7 | 8-12 | 13-18 | 19-24 | >24 | |
| N | 12 | 96 | 0 | 0 | 0 | 0 | 108 |
| NNE | 5 | 8 | 0 | 0 | 0 | 0 | 13 |
| NE | 3 | 21 | 0 | 0 | 0 | 0 | 24 |
| ENE | 3 | 13 | 0 | 0 | 0 | 0 | 16 |
| E | 4 | 14 | 0 | 0 | 0 | 0 | 18 |
| ESE | 2 | 7 | 0 | 0 | 0 | 0 | 9 |
| SE | 5 | 15 | 0 | 0 | 0 | 0 | 20 |
| SSE | 8 | 11 | 0 | 0 | 0 | 0 | 19 |
| S | 9 | 36 | 18 | 0 | 0 | 0 | 63 |
| SSW | 1 | 20 | 18 | 0 | 0 | 0 | 39 |
| SW | 3 | 50 | 6 | 1 | 0 | 0 | 60 |
| WSW | 3 | 49 | 2 | 0 | 0 | 0 | 54 |
| W | 7 | 44 | 1 | 0 | 0 | 0 | 52 |
| WNW | 7 | 32 | 0 | 0 | 0 | 0 | 39 |
| NW | 16 | 29 | 1 | 0 | 0 | 0 | 46 |
| NNW | 35 | 81 | 0 | 0 | 0 | 0 | 116 |
| TOTAL | 123 | 526 | 46 | 1 | 0 | 0 | 696 |

PERIODS OF CALM(HOURS): 2
VARIABLE DIRECTION: 0
HOURS OF MISSING DATA: 2

SITE: AEP COOK

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD: 7/1/05 - 9/30/05
STABILITY CLASS: B DT/DZ
ELEVATION: SPEED:SP10M DIRECTION:DIR10M LAPSE:DT60M

| WIND DIRECTION | WIND SPEED (MPH) | | | | | | TOTAL |
|-------------------|------------------|-----|------|-------|-------|-----|-------|
| | 1-3 | 4-7 | 8-12 | 13-18 | 19-24 | >24 | |
| N | 4 | 5 | 0 | 0 | 0 | 0 | 9 |
| NNE | 2 | 0 | 0 | 0 | 0 | 0 | 2 |
| NE | 0 | 2 | 1 | 0 | 0 | 0 | 3 |
| ENE | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| E | 3 | 1 | 0 | 0 | 0 | 0 | 4 |
| ESE | 2 | 0 | 0 | 0 | 0 | 0 | 2 |
| SE | 2 | 0 | 0 | 0 | 0 | 0 | 2 |
| SSE | 3 | 0 | 0 | 0 | 0 | 0 | 3 |
| S | 2 | 12 | 2 | 0 | 0 | 0 | 16 |
| SSW | 1 | 5 | 5 | 0 | 0 | 0 | 11 |
| SW | 0 | 4 | 4 | 0 | 0 | 0 | 8 |
| WSW | 2 | 1 | 0 | 0 | 0 | 0 | 3 |
| W | 1 | 1 | 0 | 0 | 0 | 0 | 2 |
| WNW | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| NW | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| NNW | 4 | 0 | 0 | 0 | 0 | 0 | 4 |
| TOTAL | 28 | 31 | 12 | 0 | 0 | 0 | 71 |

PERIODS OF CALM(HOURS): 2
VARIABLE DIRECTION: 0
HOURS OF MISSING DATA: 2

SITE: AEP COOK

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD: 7/1/05 - 9/30/05
STABILITY CLASS: C DT/DZ
ELEVATION: SPEED:SP10M DIRECTION:DIR10M LAPSE:DT60M

| WIND DIRECTION | WIND SPEED (MPH) | | | | | | TOTAL |
|-------------------|------------------|-----|------|-------|-------|-----|-------|
| | 1-3 | 4-7 | 8-12 | 13-18 | 19-24 | >24 | |
| N | 5 | 5 | 0 | 0 | 0 | 0 | 10 |
| NNE | 2 | 2 | 0 | 0 | 0 | 0 | 4 |
| NE | 1 | 3 | 0 | 0 | 0 | 0 | 4 |
| ENE | 3 | 3 | 0 | 0 | 0 | 0 | 6 |
| E | 2 | 0 | 0 | 0 | 0 | 0 | 2 |
| ESE | 2 | 0 | 0 | 0 | 0 | 0 | 2 |
| SE | 2 | 1 | 0 | 0 | 0 | 0 | 3 |
| SSE | 0 | 2 | 0 | 0 | 0 | 0 | 2 |
| S | 2 | 3 | 2 | 0 | 0 | 0 | 7 |
| SSW | 3 | 4 | 1 | 0 | 0 | 0 | 8 |
| SW | 1 | 3 | 2 | 0 | 0 | 0 | 6 |
| WSW | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| W | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| WNW | 1 | 1 | 0 | 0 | 0 | 0 | 2 |
| NW | 1 | 1 | 0 | 0 | 0 | 0 | 2 |
| NNW | 1 | 1 | 0 | 0 | 0 | 0 | 2 |
| TOTAL | 26 | 29 | 5 | 0 | 0 | 0 | 60 |

PERIODS OF CALM(HOURS): 2
VARIABLE DIRECTION: 0
HOURS OF MISSING DATA: 2

SITE: AEP COOK

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD: 7/1/05 - 9/30/05
STABILITY CLASS: D DT/DZ
ELEVATION: SPEED:SP10M DIRECTION:DIR10M LAPSE:DT60M

| WIND DIRECTION | WIND SPEED (MPH) | | | | | | TOTAL |
|-------------------|------------------|-----|------|-------|-------|-----|-------|
| | 1-3 | 4-7 | 8-12 | 13-18 | 19-24 | >24 | |
| N | 17 | 15 | 0 | 0 | 0 | 0 | 32 |
| NNE | 6 | 7 | 0 | 0 | 0 | 0 | 13 |
| NE | 10 | 8 | 0 | 0 | 0 | 0 | 18 |
| ENE | 11 | 2 | 0 | 0 | 0 | 0 | 13 |
| E | 3 | 4 | 0 | 0 | 0 | 0 | 7 |
| ESE | 9 | 5 | 0 | 0 | 0 | 0 | 14 |
| SE | 6 | 1 | 0 | 0 | 0 | 0 | 7 |
| SSE | 6 | 1 | 0 | 0 | 0 | 0 | 7 |
| S | 6 | 22 | 6 | 0 | 0 | 0 | 34 |
| SSW | 1 | 15 | 11 | 0 | 0 | 0 | 27 |
| SW | 4 | 12 | 6 | 0 | 0 | 0 | 22 |
| WSW | 0 | 1 | 1 | 0 | 0 | 0 | 2 |
| W | 0 | 6 | 0 | 0 | 0 | 0 | 6 |
| WNW | 1 | 1 | 0 | 0 | 0 | 0 | 2 |
| NW | 11 | 0 | 0 | 0 | 0 | 0 | 11 |
| NNW | 16 | 2 | 0 | 0 | 0 | 0 | 18 |
| TOTAL | 107 | 102 | 24 | 0 | 0 | 0 | 233 |

PERIODS OF CALM(HOURS): 2
VARIABLE DIRECTION: 0
HOURS OF MISSING DATA: 2

SITE: AEP COOK

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD: 7/1/05 - 9/30/05
STABILITY CLASS: E DT/DZ
ELEVATION: SPEED:SP10M DIRECTION:DIR10M LAPSE:DT60M

| WIND DIRECTION | WIND SPEED (MPH) | | | | | | TOTAL |
|-------------------|------------------|-----|------|-------|-------|-----|-------|
| | 1-3 | 4-7 | 8-12 | 13-18 | 19-24 | >24 | |
| N | 26 | 10 | 0 | 0 | 0 | 0 | 36 |
| NNE | 14 | 15 | 0 | 0 | 0 | 0 | 29 |
| NE | 24 | 10 | 0 | 0 | 0 | 0 | 34 |
| ENE | 23 | 11 | 0 | 0 | 0 | 0 | 34 |
| E | 27 | 3 | 0 | 0 | 0 | 0 | 30 |
| ESE | 26 | 5 | 0 | 0 | 0 | 0 | 31 |
| SE | 16 | 0 | 0 | 0 | 0 | 0 | 16 |
| SSE | 16 | 6 | 0 | 0 | 0 | 0 | 22 |
| S | 21 | 58 | 6 | 0 | 0 | 0 | 85 |
| SSW | 8 | 8 | 4 | 0 | 0 | 0 | 20 |
| SW | 6 | 20 | 1 | 0 | 0 | 0 | 27 |
| WSW | 9 | 9 | 0 | 0 | 0 | 0 | 18 |
| W | 10 | 7 | 0 | 0 | 0 | 0 | 17 |
| WNW | 2 | 3 | 0 | 0 | 0 | 0 | 5 |
| NW | 7 | 0 | 0 | 0 | 0 | 0 | 7 |
| NNW | 7 | 9 | 2 | 0 | 0 | 0 | 18 |
| TOTAL | 242 | 174 | 13 | 0 | 0 | 0 | 429 |

PERIODS OF CALM(HOURS): 2
VARIABLE DIRECTION: 0
HOURS OF MISSING DATA: 2

SITE: AEP COOK

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD: 7/1/05 - 9/30/05
STABILITY CLASS: F DT/DZ
ELEVATION: SPEED:SP10M DIRECTION:DIR10M LAPSE:DT60M

| WIND DIRECTION | WIND SPEED (MPH) | | | | | | TOTAL |
|-------------------|------------------|-----|------|-------|-------|-----|-------|
| | 1-3 | 4-7 | 8-12 | 13-18 | 19-24 | >24 | |
| N | 5 | 2 | 0 | 0 | 0 | 0 | 7 |
| NNE | 7 | 1 | 0 | 0 | 0 | 0 | 8 |
| NE | 22 | 2 | 0 | 0 | 0 | 0 | 24 |
| ENE | 29 | 0 | 0 | 0 | 0 | 0 | 29 |
| E | 28 | 0 | 0 | 0 | 0 | 0 | 28 |
| ESE | 23 | 0 | 0 | 0 | 0 | 0 | 23 |
| SE | 23 | 0 | 0 | 0 | 0 | 0 | 23 |
| SSE | 35 | 0 | 0 | 0 | 0 | 0 | 35 |
| S | 37 | 12 | 1 | 0 | 0 | 0 | 50 |
| SSW | 7 | 4 | 0 | 0 | 0 | 0 | 11 |
| SW | 5 | 1 | 0 | 0 | 0 | 0 | 6 |
| WSW | 4 | 0 | 0 | 0 | 0 | 0 | 4 |
| W | 2 | 0 | 0 | 0 | 0 | 0 | 2 |
| WNW | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| NW | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| NNW | 4 | 0 | 3 | 0 | 0 | 0 | 7 |
| TOTAL | 232 | 22 | 4 | 0 | 0 | 0 | 258 |

PERIODS OF CALM(HOURS): 2
VARIABLE DIRECTION: 0
HOURS OF MISSING DATA: 2

SITE: AEP COOK

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD: 7/1/05 - 9/30/05
STABILITY CLASS: G DT/DZ
ELEVATION: SPEED:SP10M DIRECTION:DIR10M LAPSE:DT60M

WIND SPEED (MPH)

| WIND DIRECTION | 1-3 | 4-7 | 8-12 | 13-18 | 19-24 | >24 | TOTAL |
|----------------|-----|-----|------|-------|-------|-----|-------|
| N | 3 | 0 | 0 | 0 | 0 | 0 | 3 |
| NNE | 5 | 0 | 0 | 0 | 0 | 0 | 5 |
| NE | 12 | 0 | 0 | 0 | 0 | 0 | 12 |
| ENE | 44 | 0 | 0 | 0 | 0 | 0 | 44 |
| E | 82 | 0 | 0 | 0 | 0 | 0 | 82 |
| ESE | 57 | 0 | 0 | 0 | 0 | 0 | 57 |
| SE | 51 | 0 | 0 | 0 | 0 | 0 | 51 |
| SSE | 77 | 0 | 0 | 0 | 0 | 0 | 77 |
| S | 77 | 4 | 0 | 0 | 0 | 0 | 81 |
| SSW | 31 | 0 | 0 | 0 | 0 | 0 | 31 |
| SW | 5 | 0 | 0 | 0 | 0 | 0 | 5 |
| WSW | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| W | 2 | 0 | 0 | 0 | 0 | 0 | 2 |
| WNW | 2 | 0 | 0 | 0 | 0 | 0 | 2 |
| NW | 3 | 0 | 0 | 0 | 0 | 0 | 3 |
| NNW | 2 | 0 | 0 | 0 | 0 | 0 | 2 |
| TOTAL | 453 | 4 | 0 | 0 | 0 | 0 | 457 |

PERIODS OF CALM(HOURS): 2
VARIABLE DIRECTION: 0
HOURS OF MISSING DATA: 2

SITE: AEP COOK

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD: 7/1/05 - 9/30/05
STABILITY CLASS: ALL DT/DZ
ELEVATION: SPEED:SP10M DIRECTION:DIR10M LAPSE:DT60M

| WIND DIRECTION | WIND SPEED (MPH) | | | | | | TOTAL |
|-------------------|------------------|-----|------|-------|-------|-----|-------|
| | 1-3 | 4-7 | 8-12 | 13-18 | 19-24 | >24 | |
| N | 72 | 133 | 0 | 0 | 0 | 0 | 205 |
| NNE | 41 | 33 | 0 | 0 | 0 | 0 | 74 |
| NE | 72 | 46 | 1 | 0 | 0 | 0 | 119 |
| ENE | 114 | 29 | 0 | 0 | 0 | 0 | 143 |
| E | 149 | 22 | 0 | 0 | 0 | 0 | 171 |
| ESE | 121 | 17 | 0 | 0 | 0 | 0 | 138 |
| SE | 105 | 17 | 0 | 0 | 0 | 0 | 122 |
| SSE | 145 | 20 | 0 | 0 | 0 | 0 | 165 |
| S | 154 | 147 | 35 | 0 | 0 | 0 | 336 |
| SSW | 52 | 56 | 39 | 0 | 0 | 0 | 147 |
| SW | 24 | 90 | 19 | 1 | 0 | 0 | 134 |
| WSW | 18 | 60 | 3 | 0 | 0 | 0 | 81 |
| W | 22 | 58 | 1 | 0 | 0 | 0 | 81 |
| WNW | 14 | 37 | 0 | 0 | 0 | 0 | 51 |
| NW | 39 | 30 | 1 | 0 | 0 | 0 | 70 |
| NNW | 69 | 93 | 5 | 0 | 0 | 0 | 167 |
| TOTAL | 1211 | 888 | 104 | 1 | 0 | 0 | 2204 |

PERIODS OF CALM(HOURS): 2
VARIABLE DIRECTION: 0
HOURS OF MISSING DATA: 2

SITE: AEP COOK

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD: 10/1/05 - 12/31/05
STABILITY CLASS: A DT/DZ
ELEVATION: SPEED:SP10M DIRECTION:DIR10M LAPSE:DT60M

| WIND DIRECTION | WIND SPEED (MPH) | | | | | | TOTAL |
|-------------------|------------------|-----|------|-------|-------|-----|-------|
| | 1-3 | 4-7 | 8-12 | 13-18 | 19-24 | >24 | |
| N | 3 | 26 | 2 | 0 | 0 | 0 | 31 |
| NNE | 2 | 9 | 0 | 0 | 0 | 0 | 11 |
| NE | 0 | 13 | 0 | 0 | 0 | 0 | 13 |
| ENE | 0 | 7 | 0 | 0 | 0 | 0 | 7 |
| E | 1 | 6 | 0 | 0 | 0 | 0 | 7 |
| ESE | 1 | 9 | 0 | 0 | 0 | 0 | 10 |
| SE | 0 | 5 | 0 | 0 | 0 | 0 | 5 |
| SSE | 2 | 15 | 2 | 0 | 0 | 0 | 19 |
| S | 0 | 11 | 19 | 2 | 0 | 0 | 32 |
| SSW | 0 | 4 | 6 | 1 | 0 | 0 | 11 |
| SW | 0 | 17 | 9 | 2 | 0 | 0 | 28 |
| WSW | 0 | 14 | 9 | 3 | 0 | 0 | 26 |
| W | 1 | 22 | 10 | 0 | 0 | 0 | 33 |
| WNW | 0 | 13 | 1 | 0 | 0 | 0 | 14 |
| NW | 1 | 8 | 1 | 0 | 0 | 0 | 10 |
| NNW | 3 | 15 | 1 | 0 | 0 | 0 | 19 |
| TOTAL | 14 | 194 | 60 | 8 | 0 | 0 | 276 |

PERIODS OF CALM(HOURS): 0
VARIABLE DIRECTION: 0
HOURS OF MISSING DATA: 22

SITE: AEP COOK

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD: 10/1/05 - 12/31/05
STABILITY CLASS: B DT/DZ
ELEVATION: SPEED:SP10M DIRECTION:DIR10M LAPSE:DT60M

| WIND DIRECTION | WIND SPEED (MPH) | | | | | | TOTAL |
|-------------------|------------------|-----|------|-------|-------|-----|-------|
| | 1-3 | 4-7 | 8-12 | 13-18 | 19-24 | >24 | |
| N | 2 | 2 | 2 | 0 | 0 | 0 | 6 |
| NNE | 1 | 1 | 0 | 0 | 0 | 0 | 2 |
| NE | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| ENE | 0 | 2 | 0 | 0 | 0 | 0 | 2 |
| E | 1 | 4 | 0 | 0 | 0 | 0 | 5 |
| ESE | 4 | 2 | 0 | 0 | 0 | 0 | 6 |
| SE | 1 | 5 | 0 | 0 | 0 | 0 | 6 |
| SSE | 2 | 6 | 0 | 0 | 0 | 0 | 8 |
| S | 0 | 7 | 10 | 0 | 0 | 0 | 17 |
| SSW | 0 | 2 | 5 | 0 | 0 | 0 | 7 |
| SW | 0 | 5 | 2 | 1 | 0 | 0 | 8 |
| WSW | 3 | 5 | 7 | 1 | 0 | 0 | 16 |
| W | 0 | 10 | 2 | 0 | 0 | 0 | 12 |
| WNW | 0 | 4 | 2 | 0 | 0 | 0 | 6 |
| NW | 2 | 3 | 2 | 0 | 0 | 0 | 7 |
| NNW | 1 | 3 | 0 | 0 | 0 | 0 | 4 |
| TOTAL | 17 | 62 | 32 | 2 | 0 | 0 | 113 |

PERIODS OF CALM(HOURS): 0
VARIABLE DIRECTION: 0
HOURS OF MISSING DATA: 22

SITE: AEP COOK

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD: 10/1/05 - 12/31/05
STABILITY CLASS: C DT/DZ
ELEVATION: SPEED:SP10M DIRECTION:DIR10M LAPSE:DT60M

| WIND DIRECTION | WIND SPEED (MPH) | | | | | | TOTAL |
|-------------------|------------------|-----|------|-------|-------|-----|-------|
| | 1-3 | 4-7 | 8-12 | 13-18 | 19-24 | >24 | |
| N | 0 | 3 | 1 | 0 | 0 | 0 | 4 |
| NNE | 3 | 2 | 0 | 0 | 0 | 0 | 5 |
| NE | 2 | 4 | 0 | 0 | 0 | 0 | 6 |
| ENE | 3 | 0 | 0 | 0 | 0 | 0 | 3 |
| E | 6 | 5 | 0 | 0 | 0 | 0 | 11 |
| ESE | 1 | 2 | 1 | 0 | 0 | 0 | 4 |
| SE | 4 | 3 | 7 | 0 | 0 | 0 | 14 |
| SSE | 1 | 6 | 1 | 0 | 0 | 0 | 8 |
| S | 1 | 8 | 7 | 1 | 0 | 0 | 17 |
| SSW | 3 | 10 | 7 | 5 | 0 | 0 | 25 |
| SW | 1 | 5 | 5 | 3 | 0 | 0 | 14 |
| WSW | 0 | 4 | 6 | 12 | 0 | 0 | 22 |
| W | 2 | 10 | 4 | 1 | 0 | 0 | 17 |
| WNW | 3 | 6 | 2 | 0 | 0 | 0 | 11 |
| NW | 1 | 8 | 2 | 0 | 0 | 0 | 11 |
| NNW | 0 | 3 | 6 | 1 | 0 | 0 | 10 |
| TOTAL | 31 | 79 | 49 | 23 | 0 | 0 | 182 |

PERIODS OF CALM (HOURS): 0
VARIABLE DIRECTION: 0
HOURS OF MISSING DATA: 22

SITE: AEP COOK

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD: 10/1/05 - 12/31/05
STABILITY CLASS: D DT/DZ
ELEVATION: SPEED:SP10M DIRECTION:DIR10M LAPSE:DT60M

| WIND DIRECTION | WIND SPEED (MPH) | | | | | | TOTAL |
|-------------------|------------------|-----|------|-------|-------|-----|-------|
| | 1-3 | 4-7 | 8-12 | 13-18 | 19-24 | >24 | |
| N | 9 | 56 | 4 | 0 | 0 | 0 | 69 |
| NNE | 4 | 13 | 0 | 0 | 0 | 0 | 17 |
| NE | 9 | 16 | 0 | 0 | 0 | 0 | 25 |
| ENE | 15 | 17 | 7 | 0 | 0 | 0 | 39 |
| E | 19 | 18 | 1 | 0 | 0 | 0 | 38 |
| ESE | 15 | 13 | 0 | 0 | 0 | 0 | 28 |
| SE | 12 | 26 | 15 | 0 | 0 | 0 | 53 |
| SSE | 9 | 30 | 12 | 1 | 0 | 0 | 52 |
| S | 3 | 63 | 35 | 4 | 0 | 0 | 105 |
| SSW | 5 | 25 | 64 | 16 | 2 | 0 | 112 |
| SW | 2 | 18 | 17 | 11 | 3 | 0 | 51 |
| WSW | 3 | 17 | 54 | 10 | 0 | 0 | 84 |
| W | 6 | 45 | 36 | 3 | 0 | 0 | 90 |
| WNW | 4 | 39 | 31 | 0 | 0 | 0 | 74 |
| NW | 2 | 21 | 26 | 1 | 0 | 0 | 50 |
| NNW | 9 | 28 | 6 | 3 | 0 | 0 | 46 |
| TOTAL | 126 | 445 | 308 | 49 | 5 | 0 | 933 |

PERIODS OF CALM(HOURS): 0
VARIABLE DIRECTION: 0
HOURS OF MISSING DATA: 22

SITE: AEP COOK

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD: 10/1/05 - 12/31/05
STABILITY CLASS: E DT/DZ
ELEVATION: SPEED:SP10M DIRECTION:DIR10M LAPSE:DT60M

| WIND DIRECTION | WIND SPEED (MPH) | | | | | | TOTAL |
|-------------------|------------------|-----|------|-------|-------|-----|-------|
| | 1-3 | 4-7 | 8-12 | 13-18 | 19-24 | >24 | |
| N | 15 | 14 | 1 | 0 | 0 | 0 | 30 |
| NNE | 21 | 4 | 0 | 0 | 0 | 0 | 25 |
| NE | 13 | 6 | 0 | 0 | 0 | 0 | 19 |
| ENE | 10 | 6 | 0 | 0 | 0 | 0 | 16 |
| E | 6 | 7 | 0 | 0 | 0 | 0 | 13 |
| ESE | 12 | 4 | 1 | 0 | 0 | 0 | 17 |
| SE | 20 | 19 | 6 | 0 | 0 | 0 | 45 |
| SSE | 30 | 26 | 2 | 0 | 0 | 0 | 58 |
| S | 21 | 75 | 17 | 7 | 0 | 0 | 120 |
| SSW | 4 | 7 | 3 | 1 | 0 | 0 | 15 |
| SW | 5 | 7 | 2 | 0 | 0 | 0 | 14 |
| WSW | 2 | 6 | 0 | 0 | 0 | 0 | 8 |
| W | 9 | 5 | 1 | 0 | 0 | 0 | 15 |
| WNW | 6 | 4 | 3 | 0 | 0 | 0 | 13 |
| NW | 5 | 2 | 0 | 0 | 0 | 0 | 7 |
| NNW | 6 | 12 | 0 | 0 | 0 | 0 | 18 |
| TOTAL | 185 | 204 | 36 | 8 | 0 | 0 | 433 |

PERIODS OF CALM(HOURS): 0
VARIABLE DIRECTION: 0
HOURS OF MISSING DATA: 22

SITE: AEP COOK

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD: 10/1/05 - 12/31/05
STABILITY CLASS: F DT/DZ
ELEVATION: SPEED:SP10M DIRECTION:DIR10M LAPSE:DT60M

| WIND DIRECTION | WIND SPEED (MPH) | | | | | | TOTAL |
|-------------------|------------------|-----|------|-------|-------|-----|-------|
| | 1-3 | 4-7 | 8-12 | 13-18 | 19-24 | >24 | |
| N | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| NNE | 2 | 0 | 0 | 0 | 0 | 0 | 2 |
| NE | 7 | 1 | 0 | 0 | 0 | 0 | 8 |
| ENE | 14 | 0 | 0 | 0 | 0 | 0 | 14 |
| E | 16 | 0 | 0 | 0 | 0 | 0 | 16 |
| ESE | 12 | 0 | 0 | 0 | 0 | 0 | 12 |
| SE | 11 | 1 | 0 | 0 | 0 | 0 | 12 |
| SSE | 24 | 3 | 0 | 0 | 0 | 0 | 27 |
| S | 13 | 14 | 0 | 0 | 0 | 0 | 27 |
| SSW | 8 | 0 | 0 | 0 | 0 | 0 | 8 |
| SW | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| WSW | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| W | 2 | 1 | 0 | 0 | 0 | 0 | 3 |
| WNW | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| NW | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| NNW | 3 | 0 | 0 | 0 | 0 | 0 | 3 |
| TOTAL | 114 | 21 | 0 | 0 | 0 | 0 | 135 |

PERIODS OF CALM(HOURS): 0
VARIABLE DIRECTION: 0
HOURS OF MISSING DATA: 22

SITE: AEP COOK

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD: 10/1/05 - 12/31/05
STABILITY CLASS: G DT/DZ
ELEVATION: SPEED:SP10M DIRECTION:DIR10M LAPSE:DT60M

| WIND DIRECTION | WIND SPEED (MPH) | | | | | | TOTAL |
|-------------------|------------------|-----|------|-------|-------|-----|-------|
| | 1-3 | 4-7 | 8-12 | 13-18 | 19-24 | >24 | |
| N | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| NNE | 3 | 0 | 0 | 0 | 0 | 0 | 3 |
| NE | 5 | 0 | 0 | 0 | 0 | 0 | 5 |
| ENE | 5 | 0 | 0 | 0 | 0 | 0 | 5 |
| E | 8 | 0 | 0 | 0 | 0 | 0 | 8 |
| ESE | 13 | 0 | 0 | 0 | 0 | 0 | 13 |
| SE | 22 | 0 | 0 | 0 | 0 | 0 | 22 |
| SSE | 29 | 1 | 0 | 0 | 0 | 0 | 30 |
| S | 15 | 8 | 0 | 0 | 0 | 0 | 23 |
| SSW | 0 | 2 | 0 | 0 | 0 | 0 | 2 |
| SW | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| WSW | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| W | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| WNW | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| NW | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| NNW | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TOTAL | 103 | 11 | 0 | 0 | 0 | 0 | 114 |

PERIODS OF CALM(HOURS): 0
VARIABLE DIRECTION: 0
HOURS OF MISSING DATA: 22

SITE: AEP COOK

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD OF RECORD: 10/1/05 - 12/31/05
STABILITY CLASS: ALL DT/DZ
ELEVATION: SPEED:SP10M DIRECTION:DIR10M LAPSE:DT60M

| WIND DIRECTION | WIND SPEED (MPH) | | | | | | TOTAL |
|-------------------|------------------|------|------|-------|-------|-----|-------|
| | 1-3 | 4-7 | 8-12 | 13-18 | 19-24 | >24 | |
| N | 31 | 101 | 10 | 0 | 0 | 0 | 142 |
| NNE | 36 | 29 | 0 | 0 | 0 | 0 | 65 |
| NE | 36 | 41 | 0 | 0 | 0 | 0 | 77 |
| ENE | 47 | 32 | 7 | 0 | 0 | 0 | 86 |
| E | 57 | 40 | 1 | 0 | 0 | 0 | 98 |
| ESE | 58 | 30 | 2 | 0 | 0 | 0 | 90 |
| SE | 70 | 59 | 28 | 0 | 0 | 0 | 157 |
| SSE | 97 | 87 | 17 | 1 | 0 | 0 | 202 |
| S | 53 | 186 | 88 | 14 | 0 | 0 | 341 |
| SSW | 20 | 50 | 85 | 23 | 2 | 0 | 180 |
| SW | 9 | 53 | 35 | 17 | 3 | 0 | 117 |
| WSW | 9 | 46 | 76 | 26 | 0 | 0 | 157 |
| W | 20 | 93 | 53 | 4 | 0 | 0 | 170 |
| WNW | 13 | 66 | 39 | 0 | 0 | 0 | 118 |
| NW | 12 | 42 | 31 | 1 | 0 | 0 | 86 |
| NNW | 22 | 61 | 13 | 4 | 0 | 0 | 100 |
| TOTAL | 590 | 1016 | 485 | 90 | 5 | 0 | 2186 |

PERIODS OF CALM(HOURS): 0
VARIABLE DIRECTION: 0
HOURS OF MISSING DATA: 22