2.3 METEOROLOGY

This section of the U.S. EPR FSAR is incorporated by reference with the following departures and supplements.

The U.S. EPR FSAR includes the following COL Item in Section 2.3.1:

> If a COL applicant that references the U.S. EPR design certification identifies site-specific meteorology values outside the range of the site parameters in Table 2.1-1, then the COL applicant will demonstrate the acceptability of the site-specific values in the appropriate sections of the Combined License application.

This COL Item is addressed as follows:

{The CCNPP Unit 3 site-specific meteorology values have been reviewed and compared to determine if they are within the bounds of the assumed meteorology values for a U.S. EPR. This comparison is provided in Table 2.0-1. The CCNPP Unit 3 site-specific meteorology characteristics are within the bounds of the conservative limiting meteorology values presented in Table 2.0-1, with the following exceptions:

- ♦ The 0-2 hour site-specific short-term atmospheric dispersion factor (χ/Q) for the Low Population Zone (LPZ) departure is identified in Section 2.3.4. As use of this site-specific value constitutes a departure from U.S. EPR FSAR Tier 1 Table 5.0-1, an exemption request is provided in COLA Part 7. The acceptability for the use of this value is included in Section 15.0.3.

- ♦ The maximum annual average χ/Q at the Exclusion Area Boundary (EAB) boundary departure is identified in Section 2.3.5. The acceptability for the use of this value is included in Section 2.3.5.3.}

2.3.1 Regional Climatology

No departures or supplements.

2.3.1.1 Basis for Meteorological Parameters

The U.S. EPR FSAR includes the following COL Item in Section 2.3.1.1:

> A COL applicant that references the U.S. EPR design certification will provide site-specific characteristics for regional climatology.

This COL Item is addressed as follows:

{Calvert Cliffs Nuclear Power Plant (CCNPP) is located in Calvert County, Maryland. According to information from the Office of the Maryland State Climatologist (OMSC, 2007), Calvert County is in that portion of Maryland commonly referred to as Southern Maryland, and is located on the Coastal Plain. The weather data periods used to create this narrative is identified in each subsection. The CCNPP site is located in the 18-03 state climatic division where 18 stands for the State of Maryland and 03 indicates the third division in the state.

Seasons are well defined. Winter is the dormant season for plant growth due to low temperatures rather than drought. Spring and fall are characterized by a rapid succession of warm and cold fronts associated with storm systems that generally move from a westerly direction. Summers are warm to hot. The higher humidity along the Atlantic coast causes the summer heat to feel more oppressive and the winter cold to feel more penetrating than for drier climates.

At times the Appalachian Mountains provide some protection from arctic air outbreaks in the winter. The mountain barrier may cause warming of the air descending the eastern slopes by as much as 10° F (5.6° C). In situations when high pressure is located over New England and a low pressure system is over the Ohio Valley, cold low-level winds may travel southwestward and be held east of the mountains.

Winds

The prevailing winds at the surface are determined by the frequency and intensity of anticyclones and cyclones that persist or move over the area. The majority of anticyclonic circulation over the northern portion of North America in winter brings a high percentage of cold northwesterly winds to Maryland. Therefore, the prevailing winds are from the northwesterly quadrant from October through June. In the summer this pattern changes as the semi-permanent Atlantic High moves northwestward and dominates the circulation of air over the eastern U.S. A flow of warm, moist air spreads over the area with winds from the southwesterly quadrant most of the time. During the summer the northern portion of North America is dominated by low pressure and the mean storm track is displaced north of Maryland.

Surface mean wind speeds range from 9 to 10 mph (4.1 to 4.5 m/sec) in summer to 10 to 12 mph (4.5 to 5.4 m/sec) in winter and early spring. The highest mean wind speeds are associated with the frequent passages of well-developed cyclones and anticyclones in the early spring.

Storm Tracks

Almost all migrating cyclones and anticyclones cross the U.S. from west to east. The greater numbers of cyclones travel in a northeastward direction in a path about 300 to 500 mi (483 to 805 km) north of Maryland. Storms that originate in the Gulf of Mexico, the southeastern U.S. or adjacent Atlantic coastal regions, frequently move northeastward or northward along the Atlantic Coast and can bring violent, destructive weather to the Maryland region. As these storms, commonly referred to as Nor'easters, approach from the south, strong easterly to northeasterly winds bring widespread rains and cause higher than normal tides along the Atlantic Coast and on the west side of the Chesapeake Bay. Tropical cyclones or hurricanes that develop in the West Indies, the Caribbean, or the Gulf of Mexico sometimes move into, but rarely pass entirely over the State. These systems also cause cloudy weather, heavy rains, and high tides.

Temperatures

Mean annual temperatures range from 48° F (8.9° C) in Northern Maryland to 58° F (14.4° C) in the lower Chesapeake Bay area. The winter climate on the Coastal Plain of Maryland is intermediate between the cold of the northeast and the mild weather of the South. The average frost penetration is about 5 in (13 mm) in extreme Southern Maryland; in extremely cold winters, maximum frost penetration may be double the average depth. Summer is characterized by considerable warm weather with at least several hot, humid periods. Nights are usually comfortable.

On average, temperatures of 90° F (32.2° C) or higher occur 15 to 25 days per year along the shores of the Chesapeake Bay. The average number of days per year with minimum temperature of 32° F (0° C) or lower is about 80 along the shores of the southern Chesapeake Bay area. Average relative humidity is lower in the winter and early spring, from February through April, and highest in the late summer and early fall, from August to October.

Precipitation

The most favorable situation for rain is when there is a well-developed high pressure system over New England or the St. Lawrence Valley and a well-developed low pressure system over Georgia, Tennessee or the Ohio Valley. The reverse of this situation usually produces clear, dry weather.

Annual average precipitation is about 40 to 46 in (1,016 to 1,168 mm). Distribution is generally uniform throughout the year. Although, for example, the heaviest precipitation occurs in the summer, this is the season when severe droughts are most frequent. Summer precipitation is less dependable and more variable than in winter. Annual precipitation deficits of over 16 inches (406 mm) occurred during extreme droughts of the 1930s, 1960s, and in the 1998 to 2002 period.

Annual average snowfall along the coast ranges from 8 to 10 in (203 to 254 mm). Annual snowfall totals vary considerably from one year to another. Ice and hail are infrequent; five ice storms were reported between January 14, 1999, and December 31, 2006 and twenty hail events were reported in Calvert County, Maryland, between October 9, 1962, and December 31, 2006 (NOAA, 2007a).}

2.3.1.2 Meteorological Data for Evaluating the Ultimate Heat Sink

{Sections 2.3.1.2.1 and 2.3.1.2.2 are added as a supplement to the U.S. EPR FSAR.

2.3.1.2.1 Regional Air Quality

Background

The Clean Air Act (PL, 1977) which was last amended in 1990, requires the U.S. Environmental Protection Agency (EPA) to set National Ambient Air Quality Standards (CFR, 2009a) for pollutants considered harmful to public health and the environment. The Clean Air Act established two types of national air quality standards. Primary standards set limits to protect public health, including the health of "sensitive" populations such as asthmatics, children, and the elderly. Secondary standards set limits to protect public welfare, including protection against decreased visibility, damage to animals, crops, vegetation, and buildings.

The EPA Office of Air Quality Planning and Standards (OAQPS) has set National Ambient Air Quality Standards for six principal pollutants, which are called "criteria" pollutants. Units of measure for the standards are parts per million (ppm) by volume, milligrams per cubic meter of air (mg/m^3), and micrograms per cubic meter of air (µg/m^3). Areas are either in attainment of the air quality standards or in nonattainment. Attainment means that the air quality is better than the standard.

Calvert County

Based on EPA data, Calvert County, Maryland, is in attainment for all the National Ambient Air Quality Standards (NAAQS) except for the 8 hour ozone standard (EPA, 2009a) as of October 8,

2009. The 8 hour ozone standard is 0.08 ppm and attainment is determined by whether the 3 year average of the fourth-highest daily maximum 8 hour average ozone concentrations measured at each monitor within an area over each year exceeds the standard. From Figure 2.3-6, it can be seen that the fourth-highest 8 hour average ozone concentration for Calvert County during 2006 is greater than 0.08 ppm and less than or equal to 1.0 ppm.

Nonattainment of the 8 hour ozone standard is due to its proximity to Washington, D.C. A nonattainment designation requires a state plan to be sent to the EPA describing how the area will implement air quality improvements. The NAAQS are presented in Table 2.3-1 (EPA, 2009). Note that the Maryland Department of the Environment reported that ground-level ozone levels have continued to show significant improvements since the early 1990's (MDE, 2007).

Calvert County is part of the Southern Maryland Intrastate Air Quality Control Region (AQCR), as designated in 40 CFR 81.156, Southern Maryland Intrastate Air Quality Control Region, (CFR, 2009b). The attainment status of the Southern Maryland Intrastate AQCR with regard to national ambient air quality standards is listed as being better than national standards for total suspended particulates, sulfur dioxide, and nitrogen dioxide, and unclassifiable/attainment for carbon monoxide, PM-2.5 (particulate matter with diameter less than 2.5 microns), and designated as a moderate nonattainment area for the 8 hour ozone standard (CFR, 2009c).

Class 1 Federal Lands

Class 1 federal lands include areas such as national parks, national wilderness areas, and national monuments. These areas are granted special air quality protections under Section 162(a) of the federal Clean Air Act. 40 CFR Section 51.307 requires the operator of any new major stationary source or major modification located within 62 mi (100 km) of a Class I area to contact the Federal Land Managers for that area.

The closest Class 1 Federal Lands to the CCNPP site are Shenandoah National Park and Brigantine National Wildlife Refuge in New Jersey. The distance from the CCNPP site to Shenandoah National Park, Virginia, is approximately 87 mi (140 km). The distance from the CCNPP site to the Brigantine National Wildlife Refuge in New Jersey is approximately 112 mi (180 km).

2.3.1.2.2 Severe Weather Phenomena

2.3.1.2.2.1 Tornadoes and Waterspouts

Tornadoes occur infrequently in Maryland compared with areas such as the Great Plains. Of the ones that do occur, most are small and result in nominal losses. However, two strong tornadoes hit Central and Southern Maryland within an 8 month period in 2001 to 2002. About 25% of the total number of tornadoes in Maryland occur in Southern Maryland. Approximately 70% of the tornadoes occur between 2:00 PM and 9:00 PM with most occurring from 3:00 PM to 6:00 PM. As can be seen in Figure 2.3-1 and Figure 2.3-3 (NOAA, 2000), the annual average number of tornadoes and strong-violent tornadoes (F2 to F5) during the period 1950 to 1995 are four and one, respectively. No waterspouts were reported in Calvert County between January 1, 1950, and October 31, 2006.

In the period from January 1, 1950 through December 31, 2006, 12 tornados were reported in Calvert County (NOAA, 2007a). This corresponds to an annual average of 0.2 tornados per year. The magnitude of the tornados ranged from F0 to F2, as designated by the National Weather Service. An F0 tornado has estimated wind speeds less than 73 mph (33 m/sec). An F1 tornado has estimated wind speeds between 73 and 112 mph (33 and 50 m/sec). An F2 tornado has estimated wind speeds between 113 and 157 mph (50 and 70 m/sec). The widths of the paths of the 12 tornados in Calvert Count were estimated to range from 17 to 200 yards (16 to 183 m).

In a study reported in the Journal of Weather and Forecasting of the American Meteorological Society (AMS, 2003), an estimate was made of the probability of an occurrence of a tornado day near any location in the contiguous U.S. for any time during the year. The study applied Gaussian smoothers in space and time to the observed tornado days from 1980 to 1999 to produce daily maps and annual cycles at any point on a 50 mi by 50 mi (80 km by 80 km) grid. Figure 2.3-4 shows the date of maximum tornado threat for locations meeting the minimum data requirements of the study (the gray shaded areas). Areas with a white background signify that there was not enough information to predict the maximum tornado threat date, not that a tornado would not or could not occur. Late July is indicated as the date of maximum tornado threat for the part of Maryland that includes CCNPP Unit 3.

2.3.1.2.2.2 Hurricanes

Hurricanes sometimes move into but rarely pass entirely over the CCNPP Unit 3 area. National Hurricane Center statistics (NOAA, 2005) list only two direct hits on Maryland during the period from 1851 to 2004; neither of these was a major (greater than Category 2) hurricane. Note that the Saffir-Simpson Hurricane Scale ranks hurricanes on a scale of 1 to 5 based on the intensity of the storm (NOAA, 2007b). In the eastern U.S., hurricane season begins June 1st and ends November 30th.

Table 2.3-2 shows the total and average number of tropical storms and hurricanes, by month, in the U.S., for the period 1851 to 2004 (NOAA, 2005). Note that most tropical storms and hurricanes occur in September.

The National Oceanic and Atmospheric Administration (NOAA) Coastal Services Center reports that there were 6 hurricanes, 38 tropical storms, 11 tropical depressions, one subtropical depression, and 16 extratropical storms that passed within 100 statute miles (161 km) of Calvert County, Maryland, during the period from 1851 through 2008. Of the 6 hurricane events, four were Category 1 hurricanes, one was a Category 2 hurricane, and one was a Category 3 hurricane (NOAA, 2009a). The hurricanes occurred in the months of August, September, and October. The tropical storms occurred in the months of May, July, August, September, and October.

Historical tropical cyclone-related extreme rainfall events that have occurred within the site area over a period of record from 1851 through 2008 were identified using information from (NOAA, 2009a), (NOAA, 2009b), (SERCC, 2009). These events are presented in Table 2.3-102.

The maximum tropical cyclone-related extreme rainfall event was 10.3 in (261.6 mm) at the Cambridge Water Treatment Plant, MD, in September 1935 from an unnamed storm. The second-highest event was 9.8 in (248.9 mm) at La Plata, MD, in August 1971 from Doria. The third-highest event was 8.6 in (218.4 mm) at Blackwater Refuge, MD, in August 1995 from Connie.

2.3.1.2.2.3 Thunderstorms

Thunderstorms are reported at any given station in the vicinity of Calvert County on an average of 30 to 40 days per year. They occur in all months of the year, but the majority (75% to 80%) occur in May through August. They occur less than once per month from November to February. Thunderstorms are most likely to occur during the afternoon and evening hours. (NOAA, 2007e).

Table 2.3-3 presents the monthly mean number of days on which thunderstorms occurred in the region during the period from 1971 to 2002. The information is from certified data from the National Climatic Data Center (NOAA, 2002a) (NOAA, 2002b) (NOAA, 2002c).

2.3.1.2.2.4 Lightning

J. L. Marshall (Marshall, 1973) presented a methodology for estimating lightning strike frequencies which includes consideration of the attractive area of structures. His method consists of determining the number of lightning flashes to earth per year per square kilometer and then defining an area over which the structure can be expected to attract a lightning strike. There are 4 flashes to earth per year per square kilometer in the vicinity of the proposed CCNPP Unit 3 (conservatively estimated using Figure 2.3-5 (NOAA, 2007d). Marshall (Marshall, 1973) defines the total attractive area, A, of a structure with length L, width W, and height H, for lightning flashes with a current magnitude of 50% of all lightning flashes as:

$$A = LW + 4H\,(L + W) + 12.57\,H^2 \qquad \text{Eq. 2.3.1-1}$$

The following building dimensions were used to estimate conservatively the attractive area of CCNPP Unit 3 (these values are larger than the approximate dimensions of the combined containment, the four safeguards buildings, the access building, the fuel building, and the nuclear auxiliary building):

$$L = 215\text{ m},\ W = 140\text{m},\ H = 40\text{m} \qquad \text{Eq. 2.3.1-2}$$

The total attractive area is therefore equal to 0.11 square kilometers. Consequently, the lightning strike frequency computed using Marshall's (Marshall, 1973) methodology for CCNPP Unit 3 is 0.44 flashes per year.

2.3.1.2.2.5 Droughts

Droughts in Calvert County occur most frequently during the summer season based on data from the National Climatic Data Center. Annual precipitation deficits of over 16 in (406.4 mm) occurred during extreme droughts of the 1930s, 1960s, and in the 1998 to 2002 period (NOAA, 2007e).

2.3.1.2.2.6 High Winds

Table 2.3-4 presents occurrences of winds greater than 50 knots (58 mph or 26 m/sec) by storm type for Calvert County. These data were retrieved from the National Climatic Data Center (NOAA, 2007a). There were 17 events that occurred during the period from June 2, 1980, through December 31, 2006, with the wind speed ranging from 50 to 90 knots (58 to 104 mph; 26 to 46 m/sec). The highest value occurred on April 21, 2000.

2.3.1.2.2.7 Hail

Table 2.3-5 presents twenty hail events which occurred in Calvert County, Maryland, between October 9, 1962, and December 31, 2006. These data were retrieved from the National Climatic Data Center (NOAA, 2007a). Hail stone diameters ranged from 0.75 to 2 in (19.1 to 50.8 mm). The largest value occurred on July 15, 1996.

2.3.1.2.2.8 Dust/Sand Storms

There were no dust/sand storms reported in Calvert County, Maryland, between January 1, 1993, and December 31, 2006. These data were retrieved from the National Climatic Data Center (NOAA, 2007a).

2.3.1.2.2.9 Ice Storms

Table 2.3-6 presents ice storm events which occurred within approximately 50 mi (80 km) of the site between January 1959, and January 27, 2009. The data was retrieved from the National Climatic Data Center (NOAA, 2009e) (NOAA, 2009f). Ice thickness ranged from less than 0.1 to 1.0 in (less than 2.5 to 25.4 mm). The largest values occurred on January 14, 1999, January 30, 2000, and December 11, 2002.

2.3.1.2.2.10 Snow Storms

Table 2.3-7 presents snow storm events which occurred within surrounding counties of the site between February 12, 1993, and March 1, 2009. The data was retrieved from the National Climatic Data Center (NOAA, 2009e). Snow amounts observed within approximately 50 mi (80 km) of the site ranged from less than 1.0 to 25.0 in (less than 25.4 to 635.0 mm).

Using an expanded period of record and additional data sources ((NOAA, 2009b), (NOAA, 2009c), (SERCC, 2009)), the record 1-day snowfall events within approximately 50 mi (80 km) of the site were determined. The data was corroborated when confirmatory data from the other two sources existed. The record 1-day snowfall events are presented in Table 2.3-103. The highest 1-day snowfall event was measured on February 19, 1979, at Owings Ferry Landing, Maryland, with a snowfall of 26.0 in (660.4 mm) and a period of record from 1917 through 1998.

2.3.1.2.2.11 High Air Pollution Potential

It has been observed that major air pollution episodes are usually related to the presence of stagnating anticyclones. Such anticyclones may linger over an area four days or more. During such a period, surface wind speeds can fall to very low values. The near surface circulation is therefore insufficient to disperse accumulated pollutants. These air stagnation events were analyzed in "Air Stagnation Climatology for the U.S. (1948-1998)," (NOAA, 1999). It was determined that 12 air stagnation days occur per year, on average for the period 1948 to 1998, in the vicinity of CCNPP Unit 3 site. The maximum number of air stagnation days (averaged over the same period), around 80 per year, occurs near the border of California, Arizona, and Mexico. Most air stagnation events happen in an extended summer season from May to October as a result of weaker pressure and temperature gradients and the concomitant weaker wind circulations. The study found that the eastern U.S. has a prolonged but weaker air stagnation season than the rest of the country.

Air flow from over warm waters tends to inhibit temperature inversion formation at night along the immediate coast (Hosler, 1961). During the warmer months of the year, the pressure gradient reinforces the sea breeze circulation, which results in the production of relatively strong winds during nights along the coast. This helps to delay or even inhibit nocturnal radiation inversion formation.

A study (EPA, 1972) which derived climatological statistics on morning and afternoon mixing heights and associated vertically averaged wind speeds, indicates that the mean annual morning mixing height depth over CCNPP Unit 3 will be approximately 1,968 ft (600 m) and that the mean annual afternoon mixing height depth over CCNPP Unit 3 will be approximately

4,592 ft (1,400 m). The mean annual wind speed through the morning mixing layer was found to be approximately 12 mi/hr (5.5 m/sec) and the mean annual wind speed through the afternoon mixing layer was found to be approximately 15.7 mi/hr (7.0 m/sec).

2.3.1.2.2.12 Snow/Ice Load on Roofs of Safety Related Structures

Interim Staff Guidance (ISG)-07 (NRC, 2009) clarified the NRC position on identifying winter precipitation events as site characteristics and site parameters for determining normal and extreme winter precipitation loads on the roofs of Seismic Category I structures. The normal winter precipitation event should be the highest ground-level weight (lb/ft^2) among (1) the 100-year return period snowpack, (2) the historical maximum snowpack, (3) the 100-year return period snowfall event, or (4) the historical maximum snowfall event in the site region.

ISG-07 (NRC, 2009) indicates that an appropriate source for the 100-year return period snowpack is the American Society of Civil Engineers (ASCE) Standard No. 7-05, "Minimum Design Loads for Buildings and Other Structures" (ASCE, 2006). Figure 7-1 of ASCE 2006 presents a map of the continental United States showing ground snowpack values (lb/ft^2) with a 50-year mean recurrence interval. Table C7-3 of ASCE 2006 suggests that 1.22 is a reasonable factor to convert the 50-year value recurrence interval values to 100-year mean recurrence interval values (i.e., the 50-year value divided by 0.82).

Based on ASCE 2006, the 50-year mean recurrence ground snow load in the CCNPP Unit 3 region is 25 lb/ft^2 (122 kg/m^2). The ANSI importance factor described in ASCE/SEI 7-05, "Minimum Design Loads for Buildings and Other Structures" (ASCE, 2006), can be used to adjust the 50-year recurrence ground snow load to a 100-year recurrence ground snow load. Using an importance factor of 1.22, the 100-year mean recurrence ground snow load is 30.5 lb/ ft^2 (148.9 kg/m^2).

ISG-07 (NRC, 2009) indicates that an appropriate source for the 100-year return period two-day snowfall event and the historical two-day maximum snowfall event is the National Climatic Data Center's (NCDC) Snow Climatology website (NOAA, 2009d), which includes observations from first-order National Weather Service (NWS) stations and NCDC cooperative network observing stations.

Table 2.3-100 presents the 100-year return period and historical maximum 2-day snowfall events from the NCDC Snow Climatology website. Equation 2 from ISG-07 was used to determine ground snow load values from the snowfall events. None of the ground snow load values presented in the table is greater than the 100-year mean recurrence ground snow load value on 30.5 lb/ft^2 (148.9 kg/m^2) determined using ASCE 2006.

ISG-07 (NRC, 2009) indicates that appropriate sources for the historical maximum snowpack include Local Climatological Data summaries, the Climatology of the U.S. No. 20 series, NCDC Daily Surface Data (TD3200/3210), and NCDC on-line Storm Events database.

Table 2.3-101 presents the highest daily snow depth (snowpack) taken from the (NOAA 2009d), (NOAA, 2009b), and (NOAA, 2009c). These values are used to represent the historical maximum snowpack according to guidance from ISG-07 (NRC, 2009) and were corroborated where possible by data from the other two sources. Two ground snow load values presented in Table 2.3-101 are greater than the 100-year mean recurrence ground snow load value of 30.5 lb/ft^2 (148.9 kg/m^2) determined using ASCE 2006. Of these two ground snow load values, the highest, 33.8 lb/ft^2 (164.8 kg/m^2) determined from a maximum snow depth measured at Owings Ferry Landing, MD, and reported in (NOAA 2009d), was not able to be corroborated. Therefore, the second highest value of 32.4 lb/ft^2 (158.2 kg/m^2) was used as the ground snow load value in the determination of the normal live load on the roof in the loading combinations for Seismic Category I structures. This value was determined from a maximum snow depth measured at Blackwater Refuge, MD, reported in (NOAA 2009d), and corroborated with data from (NOAA, 2009b).

The extreme frozen winter precipitation event should be the higher ground-level weight (lb/ft^2) between (1) the 100-year return period snowfall event and (2) the historical maximum snowfall event in the site region. Table 2.3-100 presents these values; the higher ground-level weight is 21.8 lb/ft^2 (106.4 kg/m^2).

The extreme liquid winter precipitation event is defined as the theoretically greatest depth of precipitation (inches of water) for a 48-hour period that is physically possible over a 25.9-square-kilometer (10-square-mile) area at a particular geographical location during those months with the historically highest snowpacks. This value can be determined from Hydrometeorological Report (HMR) Number 53 (USWB, 1980) by plotting (using a smooth curve) the probable maximum 6-hour, 24-hour, and 72-hour precipitation during the winter months of December through February. The 6-hour, 24-hour, and 72-hour Probable Maximum Winter Precipitation (PMWP) values are provided in Table 2.3-8. The plot of the probable maximum 6-hour, 24-hour, and 72-hour precipitation is presented in Figure 2.3-44. The 25.9-square-kilometer (10-square-mile) 48-hour PMWP is selected for the site from the plot using the December data since it is more conservative; the value of the 48-hour PMWP is 22.5 inches (571.5 mm).

ISG-07 (NRC, 2009) endorses the guidance provided in ASCE 7-05 (ASCE, 2006) for converting the ground snow load due to a normal winter precipitation event to a roof snow load. Using equation 7-1 from ASCE 7-05:

$$p_f = 0.7\ C_e\ C_t\ I\ p_g$$

where p_f is the roof snow load in lb/ft^2, C_e is the exposure factor, C_t is the thermal factor, I is the importance factor, and p_g is the ground snow load in lb/ft^2. The exposure factor for partially exposed, terrain category C from Table 7-2 of ASCE 7-05 was used (value of 1.0). The thermal factor and the importance factor were both set to unity according to guidance provided in ISG-07. The ground snow load is 32.4 lb/ft^2 (158.2 kg/m^2) determined using (NRC, 2009). Therefore. the roof snow load is:

$$p_f = 0.7\ (1.0)\ (1.0)\ (1.0)\ (32.4\ lb/ft^2) = 22.7\ lb/ft^2\ (110.8\ kg/m^2)$$

This value is applied as a normal live load on the roof in the loading combinations for Seismic Category 1 structures.

Extreme winter precipitation event roof loads are based on the roof load due to the normal winter precipitation event plus the roof load due to the extreme winter precipitation event. Roof loads due to the extreme winter precipitation event are the higher roof load resulting from either the extreme frozen winter precipitation event or the extreme liquid winter precipitation event. Since there are no parapets on the roofs of any of the Seismic Category I structures to impede drainage. the extreme frozen winter precipitation event was chosen as the extreme winter precipitation event.

The ground load for the extreme frozen winter precipitation event is 21.8 lb/ft^2 (106.4 kg/m^2). Using equation 7-1 from ASCE 7-05, the roof snow load due to the extreme winter precipitation event is:

p_f = 0.7 (1.0) (1.0) (1.0) (21.8 lb/ft^2) = 15.3 lb/ft^2 (74.7 kg/m^2)

Therefore, the extreme winter precipitation live roof load is 22.7 lb/ft^2 + 15.3 lb/ft^2 = 38.0 lb/ft^2 (185.5 kg/m^2). This site-specific extreme winter precipitation live roof load is bounded by the U.S. EPR design value.

2.3.1.2.2.13 Conditions for Potential Water Freezing in the Ultimate Heat Sink

Section 2.4.7 provides information regarding potential ice effects on the UHS and other plant systems. Historical ice formation is discussed in FSAR Section 2.4.7.4 of the CCNPP Unit 3 COLA and includes NIC ice charts. Ice events have not affected the operations of CCNPP Units 1 and 2. FSAR Section 2.4.7.5 provides a detailed discussion of frazil ice in the vicinity of CCNPP Unit 3. As noted in FSAR Section 2.4.7.5, frazil ice has not been observed in the intake structure of the existing CCNPP Units 1 and 2 since the start of operation. There is no public record of frazil ice obstructing other water intakes in the Chesapeake Bay. Surface ice sheets are discussed in FSAR Section 2.4.7.6 of the CCNPP unit 3 COLA. This includes a discussion of the use of the maximum accumulated freezing degree-days to estimate surface ice thickness. CCNPP Unit 3 FSAR Section 2.4.7.7 contains a detailed discussion of the effect of ice accumulation and preventative measures.

2.3.1.2.2.14 Tornado Parameters

Using the methodology from NRC Regulatory Guide 1.76, "Design-Basis Tornado and Tornado Missiles for Nuclear Power Plants," (NRC, 2007), the design-basis tornado characteristics for CCNPP Unit 3 are presented in Table 2.3-9. The maximum tornado wind speed is 200 mi/hr (89 m/sec) and the pressure drop is 0.9 psi (63 mbar).

2.3.1.2.2.15 100 Year Return Period 3 Second Wind Gust

In accordance with ASCE 7-05, "Minimum Design Loads for Buildings and Other Structures," (ASCE, 2006), the basic wind speed to be used in the determination of design wind loads on buildings and other structures is given in Figure 6-1 of that document. The wind speeds provided in Figure 6-1 include the results of an analysis of hurricane winds. This value for the CCNPP site is 95 mph (42 mps). Note that this value is the 3 second wind gust for a 50 year return period. Using the appropriate conversion factor from Table C6-7 of ASCE 7-05 (ASCE, 2006), the 100 year return period 3 second wind gust value is 95 mph X 1.07 = 101.65 mph (45.4 mps).

2.3.1.2.2.16 Temperature and Humidity for Heating, Ventilation and Air Conditioning

U.S. EPR FSAR Section 2.3.1.1 indicates that the U.S. EPR design is based on the 0% and 1% exceedance dry-bulb and coincident wet-bulb temperatures listed in U.S. EPR FSAR Table 2.1-1. Site-specific values for these parameters were determined using 30 years (1978-2007) of meteorological data from Patuxent River Naval Air Station (NAS), Maryland, a nearby representative site (NCDC, 2008).

The 1% exceedance maximum dry bulb and coincident wet bulb temperature values are 93°F (33.9°C) and 76.8°F (24.9°C) on a seasonal basis. The 1% exceedance minimum dry bulb temperature value is 14°F (-10°C) on a seasonal basis. The 0% exceedance maximum dry bulb and coincident wet bulb temperature values are 102°F (39°C) and 80°F (27°C), respectively. As demonstrated by Table 2.0-1, the U.S. EPR FSAR design values bound the 0% and 1% exceedance values for CCNPP Unit 3 listed above.

The calculated 100-year return period values of maximum and minimum dry bulb temperature are 104.8°F (40.4°C) and -5.0°F (-20.6°C), respectively. The calculated 100 year return period value of mean wet bulb temperature "coincident" with the 100-year return period value of maximum dry bulb temperature is 80.8°F (27.1°C). The 100-year return period value of maximum wet bulb temperature (non-coincident) is 86.6°F (30.3°C). These values, except for the mean wet bulb temperature "coincident" with the 100-year return period maximum dry bulb value, were determined using the ASHRAE, 2005 methodology and the maximum two-hour average dry bulb and non-coincident wet bulb temperature values for each year of the same 30-year meteorological data set used to determine the 0% and 1% exceedance temperature values.

Because the 100-year return period maximum dry bulb temperature is a calculated value, there is no wet bulb temperature measurement that is coincident with it, as there would be if it was a measured value. Therefore, a relationship between dry bulb and wet bulb temperature was determined and this value was calculated using the ASHRAE methodology and 30 years of hourly meteorological data recorded at NAS, Maryland.

A review was also conducted of historical maximum and minimum temperature values recorded at stations within 25 miles of the CCNPP site and obtained from the Southeast Regional Climate Center (SERCC, 2009). The highest recorded maximum temperature value was 106°F at Cambridge Water Treatment, Maryland, on 7/21/1930, and at Owings Ferry Landing, Maryland, on 8/6/1918. The lowest minimum temperature value, -14°F (-25.6°C), was recorded at Blackwater Refuge, Maryland, on 1/11/1942. Therefore, the highest recorded maximum temperature value of 106°F (41.1°C) is the extreme maximum annual site temperature. The lowest recorded minimum temperature value of -14°F (-25.6°C) is the extreme minimum annual site temperature.

The design parameters of the U.S. EPR FSAR HVAC systems are appropriate design parameters and bound the CCNPP Unit 3 design parameters based on the following:

- The use of annual percentiles to define design conditions [for HVAC systems] ensures that they represent the same probability of occurrence in any climate, regardless of the seasonal distribution of extreme temperature and humidity." (ASHRAE, 2005). Therefore, it is appropriate to use the 0% and 1% exceedance values for HVAC design parameters as specified in the U.S. EPR FSAR.

- Because extreme annual temperature values provide the highest or lowest temperature observed without information on the associated duration of the temperature excursion, it is not appropriate to use these values for design conditions. The U.S. EPR FSAR HVAC design is based on 0% and 1% exceedance temperatures.

- The CCNPP Unit 3 100-year return period value of coincident mean wet bulb temperature corresponds well with the design value (within 1%) providing high assurance of the appropriateness of the 0% exceedance values. It is not used as a design characteristic because a) 100-year return values are extrapolated, calculated values subject to uncertainty, b) the 100-year return values provide a temperature that has a 1% chance of being exceeded in a given year, but do not provide data on how long that temperature persists, and c) there is not actually a coincident data set, instead coincident mean wet bulb temperature is further extrapolated based on a best fit regression.

The HVAC systems that are safety-related and are designed to 0% exceedance temperature values (115°F dry bulb temperature and coincident 80°F wet bulb temperature; -40°F dry bulb temperature) are:

- Containment Building Ventilation System (Section 9.4.7)
- Annulus Building Ventilation System (Section 9.4.7)
- Safeguard Building Controlled-Area Ventilation System (Section 9.4.5)
- Main Control Room AC System (Section 9.4.1)
- Electrical Division of Safeguard Building Ventilation Systems (Section 9.4.6)
- Emergency Power Generating Building Ventilation System (Section 9.4.9)
- Fuel Building Ventilation System (Section 9.4.2)
- Essential Service Water Ventilation System (Section 9.4.11)

The HVAC systems that are non-safety-related and are designed to 1% exceedance temperature values (100°F dry bulb temperature and coincident 77°F wet bulb temperature; -10°F) are:

- Nuclear Auxiliary Building Ventilation System (Section 9.4.3)
- RAD Waste Building Ventilation System (Section 9.4.8)
- Smoke Confinement System (Section 9.4.13)
- MS & FW Valve Compartment Ventilation System (Section 9.4.12)
- Access Building Ventilation System (Section 9.4.14)
- Switchgear & SBO Building (Section 9.4.10)
- Turbine Building Ventilation System (Section 9.4.4)

The HVAC systems that are safety-related, and are designed to site specific 0% exceedance temperature values (102°F dry bulb temperature coincident 80°F wet bulb temperature; 0°F dry bulb temperature) are:

- UHS Makeup Water and Electrical Distribution Ventilation System (Section 9.4.15)

The HVAC system that are non-safety-related, augmented quality and are designed to 0% exceedance temperature values (115°F dry bulb temperature and coincident 80°F wet bulb temperature; -40°F dry bulb temperature) are:

- Fire Protection Building Ventilation System (Section 9.4.16)

The HVAC systems that are non-safety-related and are designed to site specific 1% Monthly (July or December) exceedance temperature values (93°F dry bulb temperature and coincident 76.8°F wet bulb temperature; 14°F dry bulb temperature) are:

- Circulating Water Pump Building Ventilation System
- Circulating Water Makeup Intake Structure Ventilation System
- Waste Water Treatment Building Ventilation System
- Water Treatment Building Ventilation System
- Security Access Ventilation System
- Workshop & Warehouse Ventilation System

Additional information on air conditioning, heating, cooling and ventilation systems are provided in Section 9.4.

2.3.1.2.2.17 Possible Climate Change and Potential Impact on Related Site Characteristics

Historical data and current literature on postulated long-term environmental changes were reviewed to provide assurance that the methods used to predict weather extremes are appropriate and reasonable. Reports issued by the International Panel on Climate Change (IPCC, 2007) and the U.S. Global Change Research Program (GCRP, 2009) indicate that global average air temperatures are increasing. However, there is insufficient evidence to determine whether trends exist in small-scale phenomena such as tornadoes, hail, lightning, and dust storms (IPCC, 2007), and there is no clear trend in the annual number of tropical storms (IPCC, 2007). Regionally, the Maryland Commission on Climate Change (MCCC, 2008) reports that climate change could result in the following impacts in Maryland:

- Temperature is projected to increase throughout the century. The annual average temperature is projected to increase by about 3°F by mid century. The amount of warming later in the century is dependent on the mitigation of greenhouse gas emissions.
- Precipitation is projected to increase during the winter, but become more episodic. Projections of precipitation are much less certain than for temperature. There has been no statistically significant trend in recent years, but modest increases are more likely in the winter and spring.
- Rains and winds from hurricanes are likely to increase, but their frequency and whether storm tracks will impact the state cannot be predicted.

The above described climate change projections are uncertain. Although broad trends that may result as a consequence of climate change are identified, such projections are so general that an assessment of the potential impact on design site characteristics is inherently limited. However, these potential climate-related changes were considered and addressed as follows:

- For average temperatures, the amount of warming later in the century is dependent on factors such as the mitigation of greenhouse gas emissions and cannot be accurately predicted. CCNPP FSAR Section 2.3.1, Regional Climatology, states that on average, temperatures of 90°F or higher occur 15 to 25 days per year along the shores of the Chesapeake Bay. CCNPP FSAR Section 2.3.2.1.2, Temperature and Humidity, states that the maximum hourly temperature at the CCNPP site between January 2000 and December 2005 was 96.3°F. Thus, even a projected average temperature increase of 3°F would be within the dry bulb temperature design parameter for the U.S. EPR.

For extreme temperatures, the response to RAI 152 Question 02.03.01-30 (Enclosure 2) states that the 100-year return period temperature value was calculated based on the ASHRAE method using 30 years of data from 1978-2007. This method yielded a value of 104.8°F. The response to Question 02.03.01-30 also states that the highest recorded temperature was 106°F at Cambridge Water Treatment, Maryland, on 7/21/1930, and at Owings Ferry Landing, Maryland, on 8/6/1918. While these two temperatures were not taken at the site, the locations are within 25 miles of the site. Given that the calculated value is comparable to the highest recorded value in the previous 75-90 years, the method used to calculate the 100-year return period extreme temperature is appropriate and reasonable. The calculated extreme temperature is within the 0% exceedance dry bulb temperature design parameter for the U.S. EPR.

- ♦ The maximum rainfall rate is generally associated with tropical storms, whose frequency and storm tracks cannot be predicted. However, for the site region (Solomons, MD), the National Weather Service calculated a 100-year annual recurrence interval for rainfall of 3.28 in/hr (NOAA, 2006). This value is considerably less than the U.S. EPR design parameter of 19.4 in/hr.

- ♦ Winter snow volumes are projected to decrease while winter precipitation amounts are projected to increase. Thus, there is likely no impact on the roof loads due to snow.

- ♦ There are no specific projections regarding wind speed. Thus, there is no basis to assess the possible impact on the ASCE 7-05 Basic Wind Speed (3-second gust) (ASCE, 2006).

- ♦ There is insufficient evidence to determine whether trends exist in small-scale phenomena such as tornadoes. Thus, there is no basis to assess the possible impact on the tornado maximum wind speed.

2.3.1.2.3 References

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2.3.2 Local Meteorology

The U.S. EPR FSAR includes the following COL Item in Section 2.3.2:

> A COL applicant that references the U.S. EPR design certification will provide site-specific characteristics for local meteorology.

This COL Item is addressed as follows:

{Sections 2.3.2.1 through Section 2.3.2.4 are added as a supplement to the U.S. EPR FSAR.

Sections 2.3.2.1 and 2.3.2.2 present local summaries of meteorological data based on onsite measurements made in accordance with Nuclear Regulatory Commission (NRC) Regulatory

Guide 1.23, "Meteorological Monitoring Programs for Nuclear Power Plants," Revision 1, (NRC, 2007a) and National Weather Service station summaries from appropriate nearby locations.

Onsite meteorological data compiled for Calvert Cliffs Nuclear Power Plant (CCNPP) Units 1 and 2 were used in this analysis for CCNPP Unit 3. CCNPP Unit 3 is located approximately 2,000 ft (610 m) south of CCNPP Units 1 and 2.

These data are from the existing units' onsite meteorological monitoring program which was designed, and has been operated, according to Safety Guide 23 (Regulatory Guide 1.23, Revision 0), Onsite Meteorological Programs, (NRC, 1972).

The data recovery goal of 90% was met for each of the 6 years of data (2000 to 2005). The pre-operational meteorological monitoring program also meets the requirements of Regulatory Guide 1.23, Revision 1 (NRC, 2007a), with the following deviations: no atmospheric moisture measurements (required for plants utilizing cooling towers), tower not sited at approximately the same elevation as finished plant grade, no wind shield installed on the precipitation gauge prior to June 2009, a digital data sampling rate of 10 seconds is used instead of the sampling rate of 5 seconds described in Regulatory Guide 1.23, Revision 1, tower, guyed wire, and anchor inspection performance of once every 5 years instead of an annual inspection for tower and guyed wire and an anchor inspection of once every 3 years, and some trees in the vicinity of the meteorological tower are taller than one-half the 10 meter wind measurement height and closer to the tower than 10 times the tree heights. These deviations are discussed further in Section 2.3.3.1.7.

Local meteorological values used for design and operating bases are bounded by those in the U.S. EPR FSAR.

2.3.2.1 Normal and Extreme Values of Meteorological Parameters

Monthly and annual summaries of meteorological data are provided in Sections 2.3.2.1.1 through 2.3.2.1.6.

2.3.2.1.1 Wind Speed and Direction

Table 2.3-10 and Table 2.3-11 present annual joint frequency distributions (JFD) of wind speed and direction as a function of atmospheric stability derived from the CCNPP onsite meteorological monitoring program. These tables were developed using 6 years of onsite meteorological data (2000 to 2005) following the guidance in Regulatory Guide 1.23 (NRC, 2007a). Note that additional wind speed classes were added to provide greater coverage of the lower wind speeds that are most important for atmospheric dispersion.

Table 2.3-98 and Table 2.3-99 present annual joint frequency distributions (JFD's) of wind speed and direction as a function of atmospheric stability derived from the 2000-2006 data from the CCNPP on-site meteorological monitoring program. The hourly data used to calculate these tables were used to determine the atmospheric dispersion and deposition factors presented in Sections 2.3.4 and 2.3.5.

Figure 2.3-7 and Figure 2.3-8 present annual wind rose plots of the 2000 to 2005 meteorological data for the 33 ft (10 m) and 197 ft (60 m) elevations using the wind speed classes utilized for the JFD tables. Figure 2.3-9 through Figure 2.3-32 present monthly wind rose plots of the 2000 to 2005 meteorological data for the 33 ft (10 m) and 197 ft (60 m) elevations using the wind speed classes provided in Regulatory Guide 1.23 (NRC, 2007a).

Figure 2.3-45 and Figure 2.3-33 through Figure 2.3-35 present multi-year average annual wind rose plots for National Weather Service (NWS) stations around the CCNPP site (Patuxent River NAS, Maryland, Baltimore/Washington International (BWI) Airport, Norfolk International Airport, Virginia, and Richmond International Airport, Virginia). Meteorological data used to create the plots were received from the National Climatic Data Center for Patuxent River NAS (NCDC 2008), and from the U.S. Environmental Protection Agency Support Center for Regulatory Air Models (EPA, 2009a) and were measured at approximately 33 ft (10 m) above ground level. For Patuxent River NAS, the meteorological data were from 2000 through 2005. For Norfolk and Richmond International Airports, the meteorological data were from 1984 through 1992. For BWI, the meteorological data were from 1984 through 1992, with the exception of 1989.

The annual prevailing wind direction (the direction from which the wind blows most often) at the CCNPP site at the 33 ft (10 m) level is from the southwest, approximately 14% of the time. Winds from the southwest through west sectors occur approximately 26% of the time. Conversely, winds from the northeast through east sectors occur approximately 14% of the time. The annual prevailing wind direction at the CCNPP site at the 197 ft (60 m) level is from the southwest, approximately 10% of the time. Winds from the southwest through west sectors occur approximately 20% of the time. Conversely, winds from the northeast through east sectors occur approximately 13% of the time. As is normally the case, there are more observations of calm winds at the lower level than at the upper level (0.33% versus 0.03%). At both the 33 ft (10 m) and 197 ft (60 m) levels, winds occur most infrequently from the east-southeast.

A comparison of the CCNPP 33 ft (10 m) annual wind rose with the Patuxent River NAS annual wind rose was made over the period 2000 through 2005. The annual prevailing wind direction (the direction from which the wind blows most often) at the CCNPP site at the 33 ft (10 m) level is from the southwest approximately 14% of the time. The annual prevailing wind direction at Patuxent River NAS is from the north, approximately 10% of the time. Winds from the southwest through west sectors occur approximately 26% of the time at CCNPP. Conversely, winds from the northeast through east sectors occur approximately 14% of the time at CCNPP. Winds from the southwest through west sectors occur approximately 23% of the time at Patuxent River NAS. Conversely, winds from the northeast through east sectors occur approximately 17% of the time at Patuxent River NAS. At both sites, winds occur most infrequently from the east-southeast (approximately 2.5% at CCNPP and approximately 1.5% at Patuxent River NAS). The mismatch in prevailing wind direction may be due to the differences in the location of the sites with respect to the Chesapeake Bay (CCNPP has the Bay to the east, Patuxent River NAS has the Bay to the north).

The annual prevailing wind direction at Baltimore/Washington International (BWI) Airport is from the west, approximately 13% of the time. At Norfolk, Virginia, the annual prevailing wind direction is from the southwest, approximately 11% of the time. At Richmond, Virginia, the annual prevailing wind direction is from the south-southwest, approximately 10% of the time. Note that there are more observations of calm winds at these three NWS sites than at the CCNPP site. This may be due to:

1. The CCNPP site is located directly on the Chesapeake Bay. Of the three NWS stations, Richmond International Airport is approximately 50 mi (80 km) inland, BWI is approximately 7.5 mi (12.1 km) from the Chesapeake Bay, and Norfolk International Airport is approximately 2.5 mi (4.0 km) from the Chesapeake Bay. The sea/land breeze phenomenon is stronger at the coast line than further inland. In addition, the orientation of the coast line can affect the wind direction resulting from a sea breeze.

2. The use of different wind measurement instruments due to the different needs at the sites. The NWS sites are at airports, where high wind speeds are more important than low wind speeds since they have a greater impact on aviation. At the CCNPP site, wind measurements are made to determine atmospheric dispersion to aid in dose assessment; therefore, low wind speeds are more important since they will lead to less dispersion and higher dose.

During the winter months (December through February), the prevailing wind direction at both levels is from the northwest, approximately 13%. Winds from the southwest are the next most dominant, occurring approximately 11% of the time at the 33 ft (10 m) level and approximately 9% of the time at the 197 ft (60 m) level. During the spring months (March through May), the prevailing wind direction at both levels is from the southwest, approximately 12% of the time at the lower level and 11% of the time at the upper level.

During the summer months (June through August), the prevailing wind direction at both levels is from the southwest, approximately 18% of the time at the lower level and 14% of the time at the upper level. During the autumn months (September through November), the prevailing wind direction at the 33 ft (10 m) level is from the southwest, approximately 12% of the time. At the 197 ft (60 m) level, the prevailing wind directions are from the north-northeast and from the south-southwest, approximately 9% of the time. The north-northeast flow dominates in September and October and the south-southwest flow dominates in November.

The most prevalent wind speed class at the CCNPP site on an annual basis for the 33 ft (10 m) level is the 4.7 to 6.7 mph (2.1 to 3.0 mps) class, which occurs approximately 28% of the time. The most prevalent wind speed class on an annual basis for the 197 ft (60 m) level is the 13.6 to 17.9 mph (6.1 to 8.0 mps) class, which occurs approximately 21% of the time.

Figure 2.3-46 presents the wind speed class frequency distribution for Patuxent River Naval Air Station (NAS), Maryland, for the years 2000 through 2005. The most prevalent wind speed class at Patuxent River NAS is 6.7-8.9 mph (3.0-4.0 mps). Based on Local Climatological Data summaries (NOAA, 2008a; NOAA, 2008b; and NOAA, 2008c), the average wind speed at BWI is 7.6 mph (3.4 mps), 9.9 mph (4.4 mps) at Norfolk International Airport, Virginia, and 7.8 mph (3.5 mps) at Richmond International Airport, Virginia. The maximum sustained (2-minute average) wind speeds at these stations are 45 mph at BWI, 47 mph at Norfolk, and 48 mph at Richmond.

Note that the most prevalent wind speed class on an annual basis for the 33 ft (10 m) level at CCNPP (4-7 mph (1.8-3.1 mps)) is lower than the most prevalent wind speed class at Patuxent River NAS (6.7-8.9 mph (3.0-4.0 mps)). That value is lower than the average annual wind speeds at the same measurement height presented for BWI, Norfolk and Richmond, this would lead to more conservative atmospheric dispersion estimates using the CCNPP meteorological data.

On a seasonal basis, the most prevalent wind speed class for the 33 ft (10 m) level is the 4.7 to 6.7 mph (2.1 to 3.0 mps) class, which occurs approximately 25% of the time during the winter months (December through February), 27% of the time during the spring months (March through May), 32% during the summer months (June through August), and 27% during the autumn months (September through November). At the 197 ft (60 m) level, the most prevalent wind speed class is the 13.6 to 17.9 mph (6.1 to 8.0 mps) class, which occurs approximately 25% during the winter months (December through February), 24% during the spring months (March through May), and 21% during the autumn months (September through November). During the summer months (June through August), the most prevalent wind speed class is the 9.2 to 11.2 mph (4.1 to 5.0 mps) class which occurs approximately 21% of the time.

The maximum hourly wind speed measured at the 33 ft (10 m) level is 30.1 mph (13.5 mps); the maximum hourly wind speed measured at the 197 ft (60 m) level is 45.4 mph (20.3 mps).

Table 2.3-12 through Table 2.3-25 present annual and overall wind direction persistence summaries for the 33 ft (10 m) and 197 ft (60 m) measurement levels at the CCNPP site. These tables were developed using 6 years of onsite meteorological data (2000 to 2005). Table 2.3-18 and Table 2.3-25 present an average of the six individual year summaries for the 33 ft (10 m) and 197 ft (60 m) measurement levels respectively.

The majority of the time, approximately 86%, wind direction persistence events last for less than 4 hours at both measurement levels. Persistence period is a comparison of hourly wind direction sector values; the number of persistence events is tracked along with a running count of event duration. Wind direction persistence events lasting 12 hours occur six and eight times per year on the average for the lower and upper measurement levels, respectively. Wind direction persistence events lasting greater than 24 hours occur once per year on the average for the lower and upper measurement levels.

2.3.2.1.2 Temperature and Humidity

Monthly and annual temperature summaries from the CCNPP onsite meteorological monitoring program are presented in Table 2.3-26 through Table 2.3-33 for the period from January 2000 through December 2005. Table 2.3-95 presents monthly and annual temperature summaries from the CCNPP on-site meteorological monitoring program for the period from January 1987 through December 2006. The monthly mean extreme maximum temperature is defined as the highest of the monthly average values for each month over the data period. The monthly mean extreme minimum temperature is defined as the lowest of the monthly average values for each month over the data period. These values are determined by calculating the monthly average temperature for each month of each year and then identifying the maximum and minimum monthly average temperature value for each month over the data period.

The monthly mean temperature at the CCNPP site ranges from 34.3° F (1.3° C) in January to 75.1° F (23.9° C) in July. The monthly mean extreme maximum temperature at the CCNPP site was 78.3° F (25.7° C) in July and the monthly mean extreme minimum temperature was 29.5° F (-1.4° C) in January. The monthly mean daily maximum temperature at the CCNPP site was 81.8° F (27.7° C) in July and the monthly mean daily minimum temperature was 28.5° F (-1.9° C) in January. The maximum hourly temperature at the CCNPP site was 96.3° F (35.7° C) in July and the minimum hourly temperature was 8.5° F (-13.1° C) in December. The frequency of occurrence of hourly temperature values falling below the freezing point (32° F or 0° C) is less than 10%.

Temperature and humidity statistics from sites around the CCNPP site are presented in Table 2.3-34 through Table 2.3-43 (NOAA, 2009). Dry bulb temperature values are from the 30 year period from 1971 to 2000. Wet bulb temperature values are from the 18 year period from 1983 to 2000. The monthly mean temperatures measured at the CCNPP site show good correspondence with the values presented in these tables, for example, almost all of the mean monthly temperatures measured at the CCNPP site fall within the range of values reported by the surrounding stations.

A comparison of the monthly average temperature values at CCNPP (Table 2.3-95) and the Patuxent River Naval Air Station (Table 2.3-36) was performed by determining the percent difference between the corresponding monthly values. The percent difference was defined as the absolute value of the difference between the monthly values times 100 and divided by the average of the monthly values. The comparison showed that the percent differences between the monthly average temperatures are within 3% of each other for all months, within 1.74% on average, and range from 0.26% to 2.65%. This shows good agreement between the two sites.

2.3.2.1.3 Precipitation and Fog

The monthly and annual precipitation summary from the CCNPP onsite meteorological monitoring program is presented in Table 2.3-44 through Table 2.3-45 for the period from 2000 through 2005. Table 2.3-96 presents the monthly and annual precipitation summary from the CCNPP on-site meteorological monitoring program for the period from January 1992 through December 2006. The rainfall rate distribution is provided in Table 2.3-46. Precipitation statistics from NWS sites around the CCNPP site are presented in Table 2.3-48 for the period from 1971 to 2000 and in Table 2.3-49 and Table 2.3-50 for the period from 1961 to 1990 (NOAA, 2002a; NOAA, 2002b; and NOAA, 2002c). Monthly and annual summaries of heavy fog (visibility less than one-quarter mile) are presented in Table 2.3-51 for sites around the CCNPP site.

Monthly average precipitation at the CCNPP site ranges from 1.53 in (38.86 mm) in February to 4.53 in (115.06 mm) in July. Monthly percent frequency of occurrence of precipitation at the CCNPP site ranges from 4.26% in September to 7.87% in April. The rainfall rate distribution presented in Table 2.3-46 indicates that heavy rainfalls occur infrequently at the CCNPP site. The maximum monthly precipitation measured at the CCNPP site corresponds well with the values from the NWS sites around the plant. The minimum monthly precipitation measured at CCNPP, however, does not correspond well with the values from the NWS sites around the plant; this may be due to the difference in the period of records (6 years for the CCNPP site versus 30 for the NWS sites).

A comparison of the monthly average precipitation values at CCNPP (Table 2.3-96) and the Patuxent River Naval Air Station (Table 2.3-48) was performed by determining the percent difference between the corresponding monthly values. The percent difference was defined as the absolute value of the difference between the monthly values times 100 and divided by the average of the monthly values. The comparison showed that the percent differences between the monthly average temperatures are within 33% on average and range from 8.73% to 68.91%. This shows poor agreement between the two sites. This may be due to the localized nature of convective precipitation events which are characterized by limited areal distribution, the suddenness with which they start and stop, and by rapid changes in intensity. Another potential factor to consider in light of the fact that the CCNPP monthly average values are all lower than the Patuxent River NAS values, is that CCNPP does not employ a wind screen. Wind screens are used in open, exposed areas, which are subject to strong gusty winds to minimize the wind-caused loss of precipitation falling into the rain gauge.

Figure 2.3-36 and Figure 2.3-37 present annual precipitation wind roses at the CCNPP site for the 33 ft (10 m) and 197 ft (60 m) elevations. These precipitation wind roses portray joint frequency distributions of wind speed and direction as a function of atmospheric stability for only the hours in which precipitation was recorded. These annual precipitation wind roses show that the most frequent wind direction has either a northerly or easterly component.

Fog observations are not made as part of the onsite meteorological monitoring program. Fog observations were made at the NWS stations at Baltimore/Washington International Airport Maryland, Richmond International Airport, Virginia, and Norfolk International Airport, Virginia. The average number of days per year with heavy fog (visibility less than one-quarter mile) are 24.4, 27.1, and 19.7 for Baltimore, Richmond, and Norfolk, respectively. No information was provided on the duration of heavy fog events in the reference material reviewed (NOAA, 2002a) (NOAA, 2002b) (NOAA, 2002c).

2.3.2.1.4 Atmospheric Stability

Depending on the amount of incoming solar radiation and other factors, the atmosphere may be more or less turbulent at any given time. Meteorologists have defined atmospheric stability classes, each representing a different degree of turbulence in the atmosphere. When moderate to strong incoming solar radiation heats air near the ground, causing it to rise and generate large eddies, the atmosphere is considered unstable, or relatively turbulent. Unstable conditions are associated with atmospheric stability classes A and B. When solar radiation is relatively weak or absent, air near the surface has a reduced tendency to rise, and less turbulence develops. In this case, the atmosphere is considered stable, or less turbulent, and the stability class would be E or F. Stability classes D and C represent conditions of more neutral stability, or moderate turbulence. Neutral conditions are associated with relatively strong wind speeds and moderate solar radiation.

Atmospheric stability is determined by the delta temperature method as defined in Regulatory Guide 1.23 (NRC, 2007a). This methodology classifies atmospheric stability based on the temperature change with height (° C per 100 m). At the CCNPP site, atmospheric stability is classified according to the difference between the temperature measurements at the 197 ft (60 m) and 33 ft (10 m) levels.

Table 2.3-52 through Table 2.3-57 and Table 2.3-59 through Table 2.3-64 present annual and overall atmospheric stability persistence summaries at the CCNPP site for the 33 ft (10 m) and 197 ft (60 m) measurement levels. Table 2.3-58 and Table 2.3-65 present the average annual and overall atmospheric stability persistence summaries at the CCNPP site for the 33 ft (10 m) and 197 ft (60 m) measurement levels, respectively. The annual tables were developed using 6 years of onsite meteorological data (2000 to 2005). Note that there are slight differences between the 33 ft (10 m) and 197 ft (60 m) tables even though they use the same delta-temperature measurements to determine atmospheric stability. This is because the computer code used to develop the tables checks the validity of the wind speed and direction values as well as the delta-temperature values.

The majority of the time (approximately 78%), stability persistence events last for less than 4 hours. Stability persistence events lasting 12 hours occur 19 times per year on the average and events lasting for greater than 24 hours occur nine times per year on the average.

Table 2.3-97 presents the monthly atmospheric stability summary. It was generated using six years of on-site meteorological data (2000-2005).

2.3.2.1.5 Monthly Mixing Height Data and Inversion Summary

Monthly average mixing height values for the period from 1996 through 2005 were calculated from the daily average values for each month of each year (as data were available) based on twice daily mixing height data from the National Climatic Data Center (NCDC, 2009). These data were taken from the upper air and surface National Weather Service stations closest to the CCNPP site (Wallops Island and Patuxent River, respectively). Overall monthly average mixing height values were calculated from the individual monthly average values; for example, the January overall monthly average mixing height value of 1978 ft (603 m) is the average of all of the individual January mixing height values from 1996 through 2005. On average, the number of valid days of data per month ranged from 23 to 30 (that is, days that had both a morning and afternoon mixing height value); there were some months with no valid data. Data were unavailable for 17 out of 120 months with the majority of these months (15 of 17) being in 1996 and 1997. Since there are 6 years with 12 months of valid data and 2 years with 11 months of valid data, the missing data do not adversely impact the determination of the monthly and annual average mixing height values.

Figure 2.3-38 presents the monthly average mixing height values. Table 2.3-66 shows the monthly average mixing height values in tabular form. As shown, the monthly average mixing heights ranged from 1,881 ft (573 m) in December to 2,959 ft (902 m) in July. The annual average mixing height was 2,452 ft (748 m).

Frequency and persistence of temperature inversion conditions at the CCNPP site are shown in Table 2.3-67 through Table 2.3-72. These tables were developed using 6 years of onsite meteorological data (2000 through 2005). The maximum temperature inversion duration was 31 hours. Approximately two-thirds of the inversions lasted less than 9 hours.

2.3.2.1.6 Air Quality

Based on EPA data, Calvert County, Maryland, is in attainment for all the National Ambient Air Quality Standards (NAAQS) except for the 8 hour ozone standard (EPA, 2009b) as of October 8, 2009. Attainment means that the air quality is better than the standard. The 8 hour ozone standard is 0.08 ppm and attainment is determined by whether the 3 year average of the fourth-highest daily maximum 8 hour average ozone concentrations measured at each monitor within an area over each year exceeds the standard. From Figure 2.3-6 it can be seen that the fourth-highest, 8 hour average ozone concentration for Calvert County during 2006 is greater than 0.08 ppm and less than or equal to 1.0 ppm. Nonattainment of the 8 hour ozone standard is due to its proximity to Washington, D.C. A nonattainment designation requires a state plan to be sent to the EPA describing how the area will implement air quality improvements. The NAAQS (EPA, 2007c) are presented in Table 2.3-1. Note that the Maryland Department of the Environment reported that ground-level ozone levels have continued to show significant improvements since the early 1990's (MDE, 2006).

Calvert County is part of the Southern Maryland Intrastate Air Quality Control Region (AQCR), as designated in 40 CFR 81.156 (CFR, 2009a). The attainment status of the Southern Maryland Intrastate AQCR with regard to national ambient air quality standards is listed as being better than national standards for total suspended particulates, sulfur dioxide, and nitrogen dioxide, and unclassifiable/attainment for carbon monoxide, PM2.5 (particulate matter with diameter less than 2.5 microns), and designated as a moderate nonattainment area for the 8 hour ozone standard (CFR, 2009b).

Updated construction emission calculations (AECOM, 2014) show that estimate NOX emissions will be greater than the applicable threshold for some years of construction.

2.3.2.2 Potential Influence of the Plant and its Facilities on Local Meteorology

The CCNPP site consists of low rolling hills. Elevations across the site range from 0 ft (0.6 ft NGVD29) above mean sea level (MSL) (at the shoreline of the Chesapeake Bay) to 150 ft MSL (150.6 ft NGVD29). There is a hill approximately 110 ft MSL (110.6 ft NGVD29) to the southeast of CCNPP Units 1 and 2. Another hill south-southeast of CCNPP Units 1 and 2 will be graded for CCNPP Unit 3; the CCNPP Unit 3 site grade will be approximately 84.1 ft MSL (84.7 ft NGVD29). The terrain falls off steeply to the shore of the Chesapeake Bay. The highest terrain in the vicinity of the site is in the west through north-northwest sectors. The Chesapeake Bay lies in the north through southwest sectors.

Figure 2.3-39 presents a map which shows the topography within a 1 mi (1.6 km) radius of the CCNPP site, the location of the meteorological tower, and CCNPP Units 1 and 2. Figure 2.3-40 presents a map which shows the topography within a 5 mi (8 km) radius of the CCNPP site. Figure 2.3-41 presents a map which shows the topography within a 50 mi (80 km) radius of the CCNPP site. Figure 2.3-42 presents a plot of maximum elevation versus distance from the center of the plant in each of the sixteen 22.5 degree compass point sectors (centered on true north, north-northeast, northeast, etc.) radiating from the plant to a distance of 50 mi (80 km).

CCNPP Unit 3 will be southeast of the existing Units 1 and 2. Some portions of the CCNPP site will be cleared of existing vegetation and graded to accommodate CCNPP Unit 3 and its ancillary structures. These terrain modifications would be limited to the CCNPP Unit 3 area and the immediately surrounding area and, therefore, will not represent a significant alteration to the topographic character of the region around the CCNPP site.

Construction activity will meet all pertinent Federal and State air quality regulations.

Waste heat produced by CCNPP Unit 3 will be dissipated by a closed-cycle, wet-cooling system, consisting of a single hybrid mechanical draft cooling tower. The hybrid mechanical draft cooling tower has a lower profile than the CCNPP Unit 3 containment.

For CCNPP Unit 3, the impacts from fogging, icing, shadowing, and drift deposition from the cooling tower were modeled using the Electric Power Research Institute's Seasonal/Annual Cooling Tower Impact (SACTI) prediction code. This code incorporates the modeling concepts (Policastro, 1993), which were endorsed by the NRC in NUREG-1555 (NRC, 1999). The model provides predictions of seasonal, monthly, and annual cooling tower impacts from mechanical or natural draft cooling towers. It predicts average plume length, rise, drift deposition, fogging, icing, and shadowing, providing results that have been validated with experimental data (Policastro, 1993).

The modeling determined the following:

- Due to the varying directions that the plume travels and short average and median plume height and length, impacts from elevated plumes would be SMALL and not warrant mitigation.

- Impacts from the cooling tower from fogging and icing would be SMALL and would not require mitigation. Fogging and icing would occur for only a small percentage of the time and would occur most frequently onsite.

- Impacts from salt deposition from the cooling tower would be SMALL.

- Salt deposition was predicted at rates below the NUREG-1555 significance level where visible vegetation damage may occur for both onsite and offsite locations.

- Impacts from cloud shadowing and additional precipitation would be SMALL and would not require mitigation.

- Impacts from increases in absolute and relative humidity would be SMALL and mitigation would not be warranted.

As such, CCNPP Unit 3 is not expected to cause any significant influence on local meteorology.

2.3.2.3 Local Meteorological Conditions for Design and Operating Bases

Meteorological conditions for design and operating bases are discussed in Sections 2.3.1.2, and 9.2.5.3.3.

2.3.2.4 References

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2.3.3 Onsite Meteorological Measurement Program

The U.S. EPR FSAR includes the following COL Item in Section 2.3.3:

> A COL applicant that references the U.S. EPR design certification will provide the site-specific, onsite meteorological measurement program.

This COL Item is addressed as follows:

{Sections 2.3.3.1 through 2.3.3.3 are added as a supplement to the U.S. EPR FSAR.

2.3.3.1 Preoperational Meteorological Measurement Program

The pre-operational meteorological measurement program for Calvert Cliffs Nuclear Power Plant (CCNPP) Unit 3 utilizes the existing operational meteorological measurement program and equipment established for CCNPP Units 1 and 2. Data from the CCNPP Units 1 and 2 operational meteorological measurement program were used in this analysis for CCNPP Unit 3. CCNPP Unit 3 is to be located approximately 2,000 ft (610 m) south of CCNPP Units 1 and 2.

The pre-operational meteorological measurement program for Calvert Cliffs Nuclear Power Plant (CCNPP) Unit 3 utilizes the existing operational meteorological measurement program and equipment established for CCNPP Units 1 and 2. Data from the CCNPP Units 1 and 2 operational meteorological measurement program were used in this analysis for CCNPP Unit 3. CCNPP Unit 3 is to be located approximately 2,000 ft (610 m) south of CCNPP Units 1 and 2.

The monthly mean temperatures measured at the CCNPP site show good correspondence with the monthly mean temperature values measured at surrounding National Weather Service

(NWS) sites as provided in Section 2.3.2.1.2. As a result, no additional measurement points are considered necessary for Unit 3.

This program was designed and maintained in accordance with the guidance provided in Safety Guide 23, "Onsite Meteorological Programs" (NRC, 1972). The pre-operational meteorological measurement program also meets the requirements of Regulatory Guide 1.23, Revision 1, "Meteorological Monitoring Programs for Nuclear Power Plants" (NRC, 2007), with the following deviations: no atmospheric moisture measurements (required for plants utilizing cooling towers), tower not sited at approximately the same elevation as finished plant grade, and tower, guyed wire, and anchor inspection performance of once every 5 years instead of an annual inspection for tower and guyed wire and an anchor inspection of once every 3 years, no wind shield installed on the precipitation gauge prior to June 2009, a digital data sampling rate of 10 seconds is used instead of the sampling rate of 5 seconds described in Regulatory Guide 1.23, Revision 1, and some trees in the vicinity of the meteorological tower are taller than one-half the 10 meter wind measurement height and closer to the tower than 10 times the tree heights. These deviations are discussed further in Section 2.3.3.1.7.

2.3.3.1.1 Tower Location

The meteorological tower for the CCNPP site is located in an open field off Calvert Cliffs Parkway north of the CCNPP Unit 1 and 2 Independent Spent Fuel Storage Installation (ISFSI). The elevation at the base of the tower is approximately 125 ft (38m) above mean sea level.

Figure 2.3-39 shows the location of the meteorological tower as well as the topography of the CCNPP site. The meteorological tower has been sited for CCNPP Unit 1 and 2 according to the guidance provided in Safety Guide 23 (NRC, 1972). Figure 2.3-40 shows the detailed topography of the region.

The meteorological tower is located on level, open terrain at a distance at least 10 times the height of any nearby obstruction that exceeds one-half the height of the wind measurement with the exception of some nearby trees. Some of the trees in the vicinity of the meteorological tower are taller than one-half the 10 meter wind measurement height and closer to the tower than 10 times the tree heights. These trees will either be removed or trimmed to meet the guidance in RG 1.23, Regulatory Position C.3, prior to implementing the operational program. The tower is located far enough away from proposed CCNPP Unit 3 structures and topographical features to avoid airflow modifications. The terrain height difference between the meteorological tower and the CCNPP Unit 3 reactor area is approximately 40 ft (12 m). The distance between the meteorological tower and the CCNPP Unit 3 reactor is approximately 2,900 ft (880 m). Therefore, the terrain profile has a very gentle slope and has an insignificant impact on site dispersion conditions.

2.3.3.1.2 Tower Design

The meteorological tower is 197 ft (60 m) tall with a lattice frame. Data from instruments on the tower are sent to the Met Building which is located near the tower.

The meteorological tower is designed to be capable of withstanding wind speeds of up to 100 mph (44.7 m/sec).

2.3.3.1.3 Instrumentation

The tower instrumentation consists of wind speed, wind direction, and duplicate sets of aspirated temperature sensors located at 197 ft (60 m) and 33 ft (10 m) above ground level. A tipping bucket rain gauge is located approximately 30 ft (9.1 m) from the meteorological tower in an open field and a barometric pressure device is located in the Met Building. No moisture measurements (dew point or wet bulb temperature, relative humidity) are currently taken. Consequently, meteorological data needed in the analysis of the Ultimate Heat Sink and potential plumes from cooling tower operation will be taken from other sources as described in Section 2.3.1.

CCNPP replaced their meteorological monitoring instrumentation in December 2005. The specifications of the previous instrumentation met or exceeded the accuracy and resolution requirements of Regulatory Guide 1.23 Revision 1 (NRC, 2007).

The instruments are positioned on the meteorological tower in accordance with the guidance in Regulatory Guide 1.23, Revision 1 (NRC, 2007).

Table 2.3-73 provides the current meteorological instrument accuracy and resolution and compares them with regulatory guidance provided in Regulatory Guide 1.23, Revision 1, (NRC, 2007).

Signals from the sensors are collected and processed by two data loggers. Each data logger collects the data from the meteorological tower, and performs calculations of average values, wind direction sigma theta, and temperature difference between the 197 ft (60 m) and 33 ft (10 m) levels of the meteorological tower. The primary data logger sends the averaged data values to a personal computer (PC) that is dedicated to the meteorological measurement system. This PC is located in the Met Building and includes a printer for data output. The backup data logger is connected to a dial-up modem, which provides the capability for remote retrieval of meteorological data. The primary data logger and plant equipment are isolated from the telephone connection to the backup data logger.

2.3.3.1.4 Instrument Maintenance and Surveillance Schedules

The meteorological instruments are inspected and serviced at a frequency that assures at least a 90% data recovery rate for all parameters, including the combination of wind speed, wind direction, and delta temperature. The instrumentation specified in Regulatory Guide 1.23, Revision 1 are channel checked on a daily basis and instrument calibrations are performed semi-annually.

System calibrations encompass the entire data channel for each instrument, including recording devices and displays (those located at the tower, in emergency response facilities, and those used to compile the historical data set). The system calibrations are performed by either a series of sequential, overlapping, or total channel steps.

2.3.3.1.5 Data Reduction and Compilation

Wind and temperature data are averaged over 15 minute periods. The data loggers employ a validation mode that monitors the various sensors and activates alarms as necessary. The validation mode compares the data values from the 33 ft (10 m) and 197 ft (60 m) levels of the tower. The data loggers perform a daily check of the processor cards and will alarm if values are outside of specified limits.

Averaged data values from the data loggers are collected by the meteorological software, along with maximum and minimum values of ambient temperature and wind direction variance (sigma-theta). Hourly data values are determined from the 15 minute averaged values. Output options include various functions and averages as well as graphical displays.

The 15 minute averaged data are available for use in the determination of magnitude and continuous assessment of the impact of releases of radioactive materials to the environment during a radiological emergency (as required in 10 CFR 50.47 (CFR, 2007a) and 10 CFR 50 Appendix E (CFR, 2007b)). The hourly averaged data are available for use in:

1. Determining radiological effluent release limits associated with normal operations to ensure these limits are met for any individual located offsite.

2. Determining radiological dose consequences of postulated accidents meet prescribed dose limits at the Exclusion Area Boundary (EAB) and Low Population Zone (LPZ).

3. Evaluating personnel exposures in the control room during radiological and airborne hazardous material accident conditions.

4. Determining compliance with numerical guides for design objectives and limiting conditions for operation to meet the requirement that radioactive material in effluents released to unrestricted areas be kept as low as is reasonably achievable.

5. Determining compliance with dose limits for individual members of the public.

Annual summaries of meteorological data in the form of joint frequency distributions of wind speed and wind direction by atmospheric stability class are maintained onsite and are available upon request.

A summary of the 2000 through 2005 onsite meteorological data in the form of joint frequency distributions of wind speed and wind direction by atmospheric stability class are presented in Section 2.3.2. Wind roses (graphical depictions of joint frequency distribution tables) summarizing data from 1984 to 1992 for three National Weather Service (NWS) sites are also presented in Section 2.3.2.

A comparison of the CCNPP site and the Norfolk, Virginia data (of the three NWS sites, the Norfolk, Virginia site is closest to the Chesapeake Bay) reveals that both sites have the same prevailing wind direction – wind from the south-southwest. For the south-southwest wind direction, the wind speed is between 6.9 and 17.9 mph (3.1 and 8.0 m/sec) approximately 5% of the time at the CCNPP site and the wind speed is between 7.6 and 24.6 mph (3.4 and 11.0 m/sec) approximately 9% of the time at the Norfolk, Virginia site. The most prevalent wind speed class at the CCNPP site, 4.7 to 6.7 mph (2.1 to 3.0 mps), occurs approximately 28% of the time. The most prevalent wind speed class at the Norfolk, Virginia site, 7.6 to 12.5 mph (3.4 to 5.6 mps), occurs approximately 36% of the time. These results indicate that the CCNPP onsite data also represent long-term conditions at the site.

A summary of the 2000 through 2005 onsite meteorological data in the form of joint frequency distributions of wind speed and wind direction by atmospheric stability class are presented in Section 2.3.2. Wind roses (graphical depictions of joint frequency distribution tables) summarizing data from 1984 to 1992 for three National Weather Service (NWS) sites are also presented in Section 2.3.2. A discussion of onsite temperature measurements compared to surrounding offsite data sources is provided in Section 2.3.2.1.2.

2.3.3.1.6 Nearby Obstructions to Air Flow

Downwind distances from the meteorological tower to nearby (within 0.5 mi (0.8 km)) obstructions to air flow were determined using U.S. Geological Survey topographical maps. Highest terrain is to the north and north-northwest. Lowest terrain is to the northeast,

east-northeast, and east (Chesapeake Bay). Table 2.3-74 presents the distances to nearby obstructions to air flow in each downwind sector.

The two tallest U.S. EPR structures are the Reactor Building and the Turbine Building. The Turbine Building is also the closest major building to the meteorological tower. Both buildings will be at a finished grade of approximately 83 feet (25 m) above mean seal level (MSL). Grade at the meteorological tower is approximately 125 feet (38 m) MSL.

U.S. EPR buildings are greater than a factor of ten times their respective heights away from the meteorological tower, and as such are not expected to impact the meteorological measurements.

Specific information regarding existing nearby structures and CCNPP Unit 3 buildings.

Building	Height	Distance to Meteorological Tower
CCNPP Unit 3 Reactor Building	62 m (203 ft) above grade	850 m (2789 ft)
CCNPP Unit 3 Turbine Building	55 m (180 ft) estimated	773 m (2535 ft)
ISFSI for CCNPP Units 1 and 2	7 m (23 ft) estimated	206 m (676 ft)

Routine checks of the meteorological data have indicated that the ISFSI for CCNPP Units 1 and 2 has had no impact on meteorological measurements.

From the information provided above and in Table 2.3-74 and Figure 2.3-39 and Figure 2.3-40, it is concluded there are no significant nearby obstructions to airflow.

2.3.3.1.7 Deviations to Guidance from Regulatory Guide 1.23

The pre-operational meteorological monitoring program for CCNPP Unit 3 complies with Regulatory Guide 1.23, Revision 1 (NRC, 2007), except as follows. No atmospheric moisture measurements are taken. Atmospheric moisture data needed in the analysis of the CCNPP Unit 3 Ultimate Heat Sink and potential plumes from CCNPP Unit 3 cooling tower operation will be taken from other sources as described in Section 2.3.1. In addition, the meteorological tower is not sited at approximately the same elevation as finished CCNPP Unit 3 grade. This was done in order to assure that the meteorological tower is located on level, open terrain at a distance at least 10 times the height of any nearby obstruction that exceeds one-half the height of the wind measurement (i.e., the tower is located far enough away from CCNPP Unit 3 structures and topographical features to avoid airflow modifications). Further discussion is provided in Section 2.3.3.1.1. No wind shield was installed on the precipitation gauge prior to June 2009. Note that this was not a requirement stipulated in Safety Guide 23 (NRC, 1972). However, a wind shield was installed in 2009. Therefore, this will not be a deviation during the operational program. A digital data sampling rate of 10 seconds is used instead of the sampling rate of 5 seconds described in Regulatory Guide 1.23, Revision 1. Note that this was not a requirement stipulated in Safety Guide 23.

The tower, guyed wire, and anchor inspections are performed once every 5 years instead of an annual inspection for tower and guyed wire and an anchor inspection of once every 3 years as provided in Regulatory Guide 1.23, Revision 1 (NRC, 2007). Note that this was not a requirement stipulated in Safety Guide 23 (NRC, 1972). As part of the operational program, guyed wire inspections will be performed annually and anchor inspections will be performed once every 3 years. Therefore, this will not be a deviation for the operational program.

Some trees in the vicinity of the meteorological tower are taller than one-half the 10 meter wind measurement height and closer to the tower than 10 times the tree heights, as described in RG 1.23, Regulatory Position C.3. Note that this was not a requirement stipulated in Safety Guide 23 (NRC, 1972). These trees will either be removed or trimmed to meet the guidance in RG 1.23, Regulatory Position C.3, prior to implementation of the operational program. Therefore this will not be a deviation for the operational program.

2.3.3.2 Operational Meteorological Measurement Program

The operational meteorological measurement program for CCNPP Unit 3 is based on the operational meteorological measurement program for CCNPP Units 1 and 2 with the addition of revised operational procedures. This program was designed according to the guidance provided in Safety Guide 23 (NRC, 1972) and has been upgraded for CCNPP Unit 3 to comply with Regulatory Guide 1.23, Revision 1 (NRC, 2007).

2.3.3.2.1 Tower Location

The meteorological tower for the CCNPP site is located in an open field off Calvert Cliffs Parkway north of the CCNPP Units 1 and 2 ISFSI. The elevation at the base of the tower is approximately 125 ft (38 m) above mean sea level. Figure 2.3-39 shows the location of the meteorological tower as well as the topography of the CCNPP site. The tower is sited according to the guidance provided in Regulatory Guide 1.23, Revision 1 (NRC, 2007). Figure 2.3-40 shows the general topographic features of the region.

The meteorological tower is located on level, open terrain at a distance at least 10 times the height of any nearby obstruction that exceeds one-half the height of the wind measurement; i.e., the tower is located far enough away from CCNPP Unit 3 structures and topographical features to avoid airflow modifications. The terrain height difference between the meteorological tower and the CCNPP Unit 3 reactor area is approximately 40 ft (12 m). The distance between the meteorological tower and the CCNPP Unit 3 reactor is approximately 2,789 feet (850 m). Therefore, the terrain profile has a very gentle slope and has an insignificant impact on site dispersion conditions.

2.3.3.2.2 Tower Design

The meteorological tower is 197 ft (60 m) tall with a lattice frame. Data from instruments on the tower are sent to the Met Building which is located near the tower. The primary meteorological tower is designed to be capable of withstanding wind speeds of up to 100 mph (44.7 m/sec).

2.3.3.2.3 Instrumentation

The tower instrumentation consists of wind speed, wind direction, and duplicate sets of aspirated temperature sensors located at 197 ft (60 m) and 33 ft (10 m) above ground level. A tipping bucket rain gauge is located approximately 30 ft (9.1 m) from the meteorological tower in an open field and a barometric pressure device is located in the Met Building.

The instruments are positioned on the meteorological tower in accordance with the guidance in Regulatory Guide 1.23, Revision 1 (NRC, 2007).

Table 2.3-73 presents meteorological instrument specifications and compares them with regulatory guidance provided in Regulatory Guide 1.23, Revision 1 (NRC, 2007).

Signals from the sensors are collected and processed by two data loggers. Each data logger collects the data from the meteorological tower, and performs calculations of average values, wind direction sigma theta, and temperature difference between the 197 ft (60 m) and 33 ft (10 m) levels of the meteorological tower. The primary data logger sends the averaged data values to a personal computer (PC) that is dedicated to the meteorological measurement system. This PC is located in the Met Building and includes a printer for data output. The backup data logger is connected to a dial-up modem, which provides the capability for remote retrieval of meteorological data. The primary data logger and plant equipment are isolated from the telephone connection to the backup data logger. In addition, the averaged data values are transmitted to the appropriate locations for operational and emergency response purposes (CCNPP Unit 3 Control Room, Technical Support Center, Emergency Operations Facility) and shall be submitted to the NRC's Emergency Response Data System as provided for in Section VI of Appendix E to 10 CFR Part 50 (CFR, 2007b).

2.3.3.2.4 Instrument Maintenance and Surveillance Schedules

The meteorological instruments are inspected and serviced at a frequency that assures at least a 90% data recovery rate for all parameters, including the combination of wind speed, wind direction, and delta temperature. The instrumentation specified in Regulatory Guide 1.23, Revision 1 (NRC, 2007) are channel checked on a daily basis and instrument calibrations are performed semi-annually.

System calibrations encompass the entire data channel for each instrument, including recording devices and displays (those located at the tower, in emergency response facilities, and those used to compile the historical data set). The system calibrations are performed by either a series of sequential, overlapping, or total channel steps.

2.3.3.2.5 Data Reduction and Compilation

Wind and temperature data are averaged over 15 minute periods. The data loggers employ a validation mode that monitors the various sensors and activates alarms as necessary. The validation mode compares the data values from the 33 ft (10 m) and 197 ft (60 m) levels of the tower. The data loggers perform a daily check of the processor cards and will alarm if values are outside of specified limits.

Averaged data values from the data loggers are collected by the meteorological software, along with maximum and minimum values of ambient temperature and wind direction variance (sigma-theta). Hourly data values are determined from the 15 minute averaged values. Output options include various functions and averages as well as graphical displays.

The 15 minute averaged data are available for use in the determination of magnitude and continuous assessment of the impact of releases of radioactive materials to the environment during a radiological emergency (as required in 10 CFR 50.47 (CFR, 2007a) and 10 CFR 50 Appendix E (CFR, 2007b)). The hourly averaged data are available for use in:

1. Determining radiological effluent release limits associated with normal operations to ensure these limits are met for any individual located offsite.

2. Determining radiological dose consequences of postulated accidents meet prescribed dose limits at the EAB and LPZ.

3. Evaluating personnel exposures in the control room during radiological and airborne hazardous material accident conditions.

4. Determining compliance with numerical guides for design objectives and limiting conditions for operation to meet the requirement that radioactive material in effluents released to unrestricted areas be kept as low as is reasonably achievable.

5. Determining compliance with dose limits for individual members of the public.

Annual summaries of meteorological data in the form of joint frequency distributions of wind speed and wind direction by atmospheric stability class are maintained onsite and are available upon request.

A summary of the 2000 through 2005 onsite meteorological data in the form of joint frequency distributions of wind speed and wind direction by atmospheric stability class is presented in Section 2.3.2.

Wind roses (graphical depictions of joint frequency distribution tables) summarizing data from 1984 to 1992 for three NWS sites are also presented in Section 2.3.2.

A comparison of the CCNPP site and the Norfolk, Virginia data (of the three NWS sites, the Norfolk, Virginia site is closest to the Chesapeake Bay) reveals that both sites have the same prevailing wind direction – wind from the south-southwest. For the south-southwest wind direction, the wind speed is 6.9 to 17.9 mph (3.1 to 8.0 mps) approximately 5% of the time at the CCNPP site and the wind speed is 7.6 to 24.6 mph (3.4 to 11.0 mps) approximately 9% of the time at the Norfolk, Virginia site. The most prevalent wind speed class at the CCNPP site, 4.7 to 6.7 mph (2.1 to 3.0 mps), occurs approximately 28% of the time. The most prevalent wind speed class at the Norfolk, Virginia site, 7.6 to 12.5 mph (3.4 to 5.6 mps), occurs approximately 36% of the time. These results indicate that the CCNPP onsite data also represent long-term conditions at the site.

2.3.3.2.6 Nearby Obstructions to Air Flow

Downwind distances from the meteorological tower to nearby (within 0.5 mi (0.8 km)) obstructions to air flow were determined using U.S. Geological Survey topographical maps. Highest terrain is to the north and north-northwest. Lowest terrain is to the northeast, east-northeast, and east (Chesapeake Bay). Table 2.3-74 presents the distances to nearby obstructions to air flow in each downwind sector.

From the information provided in Section 2.3.3.1.6, Section 2.3.3.2.1, Table 2.3-74, Figure 2.3-39, and Figure 2.3-40 and with the knowledge that the base of the tower is at an elevation of approximately 125 ft (38 m), it can be seen that there are no significant nearby obstructions to airflow.

2.3.3.2.7 Deviations to Guidance from Regulatory Guide 1.23

The meteorological tower is not sited at approximately the same elevation as finished plant grade. This was done in order to assure that the meteorological tower is located on level, open terrain at a distance at least 10 times the height of any nearby obstruction that exceeds one-half the height of the wind measurement; i.e., the tower is located far enough away from CCNPP Unit 3 structures and topographical features to avoid airflow modifications. Further discussion is provided in Sections 2.3.3.1.6 and 2.3.3.2.1. A digital data sampling rate of 10 seconds is used instead of the sampling rate of 5 seconds described in Regulatory Guide 1.23, Revision 1 (NRC, 2007). CCNPP Unit 3 will share the same meteorological tower with CCNPP Units 1 & 2. Ten seconds is the sampling rate used for the existing meteorological tower for CCNPP Units 1 & 2 and has not been shown to have any impact on data quality. Retaining the 10 second sampling rate allows CCNPP Unit 3 to share data from the meteorological tower without impacting CCNPP Units 1 & 2 and continue to meet the intent of regulatory guidance criteria relating to data quality for onsite meteorological measurements.

2.3.3.3 References

CFR, 2007a. Emergency Plans, Title 10, Code of Federal Regulations, Part 50.47, 2007.

CFR, 2007b. Emergency Planning and Preparedness for Production and Utilization Facilities, Title 10, Code of Federal Regulations, Part 50, Appendix E, 2007.

NRC, 1972. Onsite Meteorological Programs, Safety Guide 23 (Regulatory Guide 1.23, Revision 0), U.S. Nuclear Regulatory Commission, February 1972.

NRC, 2007. Meteorological Monitoring Programs for Nuclear Power Plants, Regulatory Guide 1.23, Revision 1, U.S. Nuclear Regulatory Commission, March 2007.}

2.3.4 Short Term Atmospheric Dispersion Estimates for Accident Releases

The U.S. EPR FSAR includes the following COL Items in Section 2.3.4:

> A COL applicant that references the U.S. EPR design certification will confirm that site-specific χ/Q values, based on site-specific meteorological data, are bounded by those specified in Table 2.1-1 at the EAB, LPZ and the control room.
>
> For site-specific χ/Q values that exceed the bounding χ/Q values, a COL applicant that references the U.S. EPR design certification will demonstrate that the radiological consequences associated with the controlling design basis accident continue to meet the dose reference values given in 10 CFR Part 50.34 and the control room operator dose limits given in GDC 19 using site-specific χ/Q values.
>
> A COL applicant that references the U.S. EPR design certification will provide a description of the atmospheric dispersion modeling used in evaluating potential design basis events to calculate concentrations of hazardous materials (e.g., flammable or toxic clouds) outside building structures resulting from the onsite and/or offsite airborne releases of such materials.

These COL Items are addressed as follows:

{These COL Items are addressed in Section 2.3.4.2.1 through 2.3.4.3.

Sections 2.3.4.1 through 2.3.4.4 are added as a supplement to the U.S. EPR FSAR.

2.3.4.1 Objective

This section provides, for appropriate time periods up to 30 days after an accident, conservative estimates of atmospheric dispersion factors (χ/Q) values at the exclusion area boundary (EAB), at the outer boundary of the low population zone (LPZ), and at the control room for postulated accidental radioactive airborne releases. This section also addresses atmospheric dispersion modeling used in Section 2.2.3 to evaluate potential design basis events resulting from the onsite and/or offsite airborne releases of hazardous materials (e.g., flammable vapor clouds, toxic chemicals, and smoke from fires). A discussion of the anticipated effects of the Chesapeake Bay on atmospheric dispersion is provided in Section 2.3.5.4.

2.3.4.2 Calculations

2.3.4.2.1 Conservative Short-Term (Accident Release) Atmospheric Dispersion Estimates for EAB and LPZ

Short-term atmospheric dispersion estimate (χ/Q) values at the Exclusion Area Boundary (EAB) and Low Population Zone (LPZ) are provided in Table 2.1-1 of the U.S. EPR FSAR. Conservative estimates of site-specific atmospheric dispersion for the CCNPP Unit 3 EAB and the outer boundary of the site-specific LPZ were determined using computer code AEOLUS3 version 1 and seven years of meteorological data (2000 through 2006) from the onsite monitoring program at the existing CCNPP Units 1 and 2.

Site-specific local meteorological data are described in Section 2.3.2.

AEOLUS3 was developed and validated by Entech Engineering. It implements the guidance in Regulatory Guide 1.145, "Atmospheric Dispersion Models for Potential Accident Consequence Assessments at Nuclear Power Plants," (NRC, 1982) for accidental releases. The code has been used in past licensing submittals and its results have been found to be acceptable (NRC, 2005).

AEOLUS3 operates in a batch-input mode with various options that are user selectable. The program is based on a straight-line trajectory Gaussian plume model. The plume can be depleted by wet deposition, dry deposition, and radioactive decay. The computed ground-level concentration can be modified to account for plume recirculation or stagnation. The program computes an effective plume height which accounts for physical release height, aerodynamic downwash, plume rise, and terrain heights. Other options include plume-meander effects and wind speed extrapolation.

Input details for AEOLUS3 version 1 are provided in Section 2.3.4.3

The determination of the site-specific atmospheric dispersion for the EAB and at the outer boundary of the LPZ complies with the guidance provided in Regulatory Guide 1.145, Revision 1, (NRC,1982) were made.

Conservative estimates of atmospheric dispersion for the EAB and the outer boundary of the LPZ for CCNPP Unit 3 are presented in Table 2.3-75.

The values for the EAB and LPZ presented in Table 2.3-75 are bounded by those in U.S. EPR FSAR Table 2.1-1 except for the 0-2 hr value for the LPZ. This represents a departure from the U.S. EPR FSAR. This departure and its associated justification are discussed in Section 15.0.3.

2.3.4.2.2 Short-Term (Accident Release) Atmospheric Dispersion Estimates for the Control Room

Short-term atmospheric dispersion estimates (χ/Q) values estimated for the control room are provided in Table 2.1-1 of the U.S. EPR FSAR. Short-term atmospheric dispersion χ/Q estimates for unfiltered inleakage into the control room are provided in Table 2.1-1 of the U.S. EPR FSAR. Conservative estimates of the site-specific atmospheric dispersion for the control room were determined using computer code ARCON96 and seven years of meteorological data (2000 through 2006) from the onsite monitoring program at the existing CCNPP Units 1 and 2. The version of the ARCON96 code, i.e., version 1.0 which was used is the May 9, 1997 version which is endorsed in Regulatory Guide 1.194 (NRC, 2003). Site-specific local meteorological data are described in Section 2.3.2.

ARCON96 implements the guidance in Regulatory Guide 1.194, Atmospheric Relative Concentrations for Control Room Radiological Habitability Assessments at Nuclear Power Plants," (NRC, 2003). ARCON96 was specifically developed for the Nuclear Regulatory Commission (NRC, 1997). The determination of the site-specific atmospheric dispersion for the control room were made in compliance with the guidance provided in Regulatory Guide 1.194, Revision 0, (NRC, 2003) were made.

Input details for ARCON96 are provided in Table 2.3-82.

Conservative site-specific estimates of atmospheric dispersion for the CCNPP Unit 3 control room are presented in Table 2.3-76 through Table 2.3-79. The values for the control room presented in Table 2.3-76 through Table 2.3-79 are bounded by those in Table 2.1-1 within the U.S. EPR FSAR. The same meteorological data are used to calculate unfiltered χ/Q values. Since the site-specific control room χ/Q values were demonstrated to be bounded by the U.S. EPR χ/Q values, the calculation of site-specific atmospheric dispersion factors for unfiltered inleakage was not necessary. CCNPP Unit 3 incorporates by reference the doses for the main control room presented in the U.S. EPR FSAR.

U.S. EPR FSAR Table 2.1-1 provides the locations of potential accident release pathways and their relationship to the control room, and Figure 2.1-1 and Figure 2.3-43 provide the CCNPP site plan and control room location.

2.3.4.2.3 Atmospheric Dispersion Modeling for Hazardous Materials

The description of the atmospheric modeling used in the evaluation of potential design basis events to calculate concentration of hazardous material is provided in Section 2.2.3.1.

2.3.4.3 Input Details for Computer Codes AEOLUS3 (Version 1)

Assumptions made for AEOLUS3 modeling:

- Ground level release was assumed.
- Since a ground level release was assumed, the release point and receptor elevations were assumed to be the same.
- For EAB/LPZ atmospheric dispersion factors for DBAs, all post-accident release points were based on the ground level release model with no dispersion credit for building wake effects. However, plume meander, which predominates building wake effects during short time intervals, is accounted for.
- For the offsite receptors, accident atmospheric dispersion factors were calculated for a set of distances ranging from 0.25 mile to 5 miles. Bounding distances were selected based on actual site characteristics.
- For normal effluent analysis, receptor locations between distances at which terrain heights were determined using USGS topographical maps were assigned the maximum of the two values.

Specific input parameters and values are provided in Table 2.3-81.

2.3.4.4 References

NRC, 1977. Methods for Estimating Atmospheric Transport and Dispersion of Gaseous Effluents in Routine Releases from Light-Water-Cooled Reactors, Regulatory Guide 1.111, Revision 1, U.S. Nuclear Regulatory Commission, July 1977.

NRC, 1982. Atmospheric Dispersion Models for Potential Accident Consequence Assessments at Nuclear Power Plants, Regulatory Guide 1.145, Revision 1, U.S. Nuclear Regulatory Commission, November 1982.

NRC, 1997. Atmospheric Relative Concentrations in Building Wakes, NUREG/CR-6331, U.S. Nuclear Regulatory Commission, May 1997.

NRC, 2003. Atmospheric Relative Concentrations for Control Room Radiological Habitability Assessments at Nuclear Power Plants, Regulatory Guide 1.194, Revision 0, U.S. Nuclear Regulatory Commission, June 2003.

NRC, 2005. Letter NRC (Boska) to Entergy (Kansler), Pilgrim Nuclear Power Station, Issuance of Amendment (215), NRC Adams Accession Number ML 051040065, Dated April 28, 2005.}

2.3.5 Long-term Atmospheric Dispersion Estimates for Routine Releases

The U.S. EPR FSAR includes the following COL Items in Section 2.3.5:

> A COL applicant that references the U.S. EPR design certification will provide the site-specific, long-term diffusion estimates for routine releases. In developing this information, the COL applicant should consider the guidance provided in Regulatory Guides 1.23, 1.109, 1.111, and 1.112. The maximum annual average χ/Q value at the site boundary, provided in Table 2.1-1, is used to calculate radionuclide concentrations associated with routine gaseous effluent releases, addressed in Section 11.3, for comparison with environmental release limits and dose limits given in 10 CFR Part 20. If a reactor site has an annual average χ/Q value that exceeds the reference value, then a site-specific evaluation will be performed.
>
> A COL applicant that references the U.S. EPR design certification will also provide estimates of annual average atmospheric dispersion (χ/Q values) and deposition (D/Q values) for 16 radial sectors to a distance of 50 mi from the plant as part of its environmental assessment.

These COL Items are addressed as follows:

{Sections 2.3.5.1 through 2.3.5.5 are added as a supplement to U.S. EPR FSAR.

2.3.5.1 Objective

This section provides realistic estimates of annual average atmospheric dispersion (χ/Q values) and deposition (D/Q values) to a distance of 50 mi (80 km) for annual average release limit calculations and person-rem estimates.

2.3.5.2 Calculations

Realistic estimates of site-specific annual average atmospheric transport and diffusion characteristics were determined using computer code AEOLUS3 version 1 and seven years of meteorological data (2000 through 2006) from the onsite monitoring program at the existing Calvert Cliffs Nuclear Power Plant (CCNPP) Units 1 and 2. Site-specific local meteorological data are described in Section 2.3.2.

AEOLUS3 was developed and validated by Entech Engineering. It implements the methodology of Regulatory Guide 1.111, "Methods for Estimating Atmospheric Transport and Dispersion of Gaseous Effluents in Routine Releases from Light-Water-Cooled Reactors," Revision 1, (NRC, 1977a) for routine releases. The code has been used in past licensing submittals and its results have been found to be acceptable (NRC, 2005).

AEOLUS3 operates in a batch-input mode with various options that are user selectable. The program is based on a straight-line trajectory Gaussian plume model. The plume can be depleted by wet deposition, dry deposition, and radioactive decay. The computed ground-level concentration can be modified to account for plume recirculation or stagnation. The program computes an effective plume height which accounts for physical release height, aerodynamic downwash, plume rise, and terrain heights. Other options include plume-meander effects and wind speed extrapolation.

AEOLUS3 produces the following dispersion parameters: the concentration χ/Q, which is used for the determination of airborne concentrations and inhalation doses at offsite receptors of interest as well as gamma air doses; the gamma χ/Q, which may be employed in the computation of external gamma radiation from the ensuing finite clouds of radioactive material; and the deposition factor D/Q, which is used as a measure of the relative deposition of released radioactivity. Doses calculated due to postulated normal effluents from CCNPP Unit 3 made use of the concentration χ/Q and deposition factor D/Q values. The gamma χ/Q values, while not used to determine normal effluent doses for CCNPP Unit 3, represent an alternative methodology to determine gamma air doses.

AEOLUS3 computes plume standard deviations in the horizontal and vertical dimensions σ_y and σ_z, respectively) using the analytical expressions from the Nuclear Regulatory Commission-sponsored computer program XOQDOQ. The onsite meteorological data discussed in Section 2.3.2 and used in the dispersion analysis has been deemed suitable to represent the region for its intended use, i.e., to meet the requirements of 10 CFR 50, Appendix I. The onsite meteorological data used in the dispersion analysis has been shown to be representative of the region as discussed in Section 2.3.2. Thus, the atmospheric dispersion and deposition factors determined by AEOLUS3 from the site boundary to a radius of 50 mi (80 km) from the plant are appropriate for use in estimating the consequences of routine releases for CCNPP Unit 3.

Meteorological data summaries used as input to AEOLUS3 are provided in Section 2.3.2. The regulatory guidance described in Regulatory Guide 1.23, Revision 1 (NRC, 2007b), was followed in the determination of appropriate onsite meteorological data. The regulatory guidance described in Regulatory Guide 1.112 (NRC, 2007a) was followed in the determination of points of routine release of radioactive materials to the atmosphere and their characteristics. The regulatory guidance described in Regulatory Guide 1.109, Revision 1 (NRC, 1977b), was followed in the determination of potential receptors of interest.

AEOLUS3 implements the guidance in Regulatory Guide 1.145, Revision 1 (NRC, 1982) and Regulatory Guide 1.111, Revision 1 (NRC, 1977a).

The atmospheric transport and diffusion models used to determine the long-term atmospheric dispersion estimates for routine releases for CCNPP Unit 3 comply with the guidance provided in Regulatory Guide 1.111, Revision 1, (NRC, 1977a).

A mixed mode release from the CCNPP Unit 3 stack was modeled to determine routine release normal effluent atmospheric dispersion and deposition factors. Table 2.3-1 of the U.S. EPR FSAR indicates the location of the stack. As previously stated, seven years of meteorological data (2000 through 2006) from the onsite monitoring program at CCNPP Units 1 and 2 were used in the analysis. In Section 2.3.2, joint frequency distributions of wind speed and wind direction as a function of atmospheric stability class were determined using two sets of meteorological data from the on-site monitoring program: 2001-2005 and 2001-2006 (which included the most recent year of meteorological data). Since the differences in annual average atmospheric dispersion factor values seen when the 2006 meteorological data were included ranged from -3.4% to 6.8% over downwind distances from 0.5 to 50 miles, the impact of the difference in data sets is not significant.

Credit for building wake effect was taken. The release point was 203 ft (62 m) above grade (6.6 ft (2 m) above the Reactor Building). The gamma energy spectrum and relative intensity were set to 0.3 MeV and 1.0 MeV/sec, respectively. The 0.3 MeV value was determined to provide the maximum gamma χ/Q values by running test cases using other gamma energy spectrum values. Terrain height values for downwind receptor locations were determined using topographic maps from the U.S. Geological Survey. The annual average height of the inversion layer and the maximum allowable plume centerline height were set to 2,454 ft (748 m). This value was determined from mixing height data from the National Climatic Data Center. A stack flow rate of 242,458 ft^3/min (6,865,646 l/min) was used; this is a conservative value, since the actual flow rate for normal operations will be higher.

Specific input parameters and values are provided in Table 2.3-81 and Table 2.3-82.

Table 2.3-83 through Table 2.3-93 present the site-specific normal effluent annual average atmospheric dispersion and deposition factors for a mixed mode release from the CCNPP Unit 3 stack. Locations of interest (i.e., site boundary, nearest resident, nearest garden) were derived from the annual CCNPP site land use census, and from regulatory guidance.

The specific locations of the potential receptors of interest are provided in Table 2.3-94. At the time of the analysis, there were no meat cow or milk animal receptors reported within 5 mi (8 km) of the plant.

The maximum site-specific annual average χ/Q and D/Q values at the EAB boundary are 5.039E-06 sec/m^3 and 3.7921E-08 1/m^2, respectively. This χ/Q represents a departure from the U.S. EPR FSAR. The maximum annual average χ/Q at the EAB boundary exceeds the value 4.973E-6 sec/m^3 presented in Table 2.1-1 within the U.S. EPR FSAR. The site-specific evaluation of this departure is provided in Section 2.3.5.3 and is discussed in Part 7 of the COL application.

2.3.5.3 Site-Specific Evaluation of Maximum Annual Average x/Q

A review of CCNPP Unit 3 Environmental Report, Table 5.4-6, "Distance to Nearest Gaseous Dose Receptors," indicates that the NE sector of the Exclusion Area Boundary (EAB) (0.5 mi radius centered on Reactor Building) intersects with the Site Area Boundary (0.28 mi) at the shoreline of Chesapeake Bay. The Maximum Annual Average χ/Q value is computed at 0.5 miles which is located approximately 0.22 miles offshore in the Chesapeake Bay. As presented in Table 2.3-83, all other Sectors annual average χ/Q value at 0.5 miles are bounded by the maximum annual average χ/Q value provided in U.S. EPR FSAR Table 2.1-1.

The justification for exceeding the Maximum Annual Average for Atmospheric Dispersion Factor χ/Q value of < 4.973E-6 sec/m^3 is as follows:

- There are no persons currently living within the EAB or on its boundary in the NE sector.
- The boundary of the EAB in the NE sector lies on Chesapeake Bay, therefore, the probability of anyone living on a watercraft 0.22 mi offshore for an extended period of time is extremely low.
- The plant licensee will have control over the point in the NE sector at which EAB and the Site Boundary intersect.

In summary, although the Maximum Annual Average χ/Q value for CCNPP Unit 3 exceeds the χ/Q limiting value specified in Table 2.1-1 of the U.S. EPR FSAR, operation of CCNPP Unit 3 is justified for the following reasons:

- Persons will not be living within the sector of the Maximum Annual Average χ/Q value.
- CCNPP Unit 3 will have control over persons living within the EAB and site boundary.
- All other Sectors' Maximum Annual Average χ/Q value is within the limiting value specified in Table 2.1-1 of the U.S. EPR FSAR.

As such, dose limits of 10 CFR 50 Appendix I for the maximally exposed individual will not be exceeded.

2.3.5.4 Anticipated Influence of Chesapeake Bay on Atmospheric Dispersion

Previous meteorological data have been obtained and studied to estimate diffusion over Chesapeake Bay relative to that over land during conditions of off-shore air flow (Slade, 1962). The study measured wind and air temperatures on both the west and east sides of the Chesapeake Bay as well as Bay water temperatures.

The study indicated that dispersion is generally poorer over the water than over the land due to the reduction of wind fluctuations over the comparatively smooth surface of Chesapeake Bay. The study also showed that the magnitude of the overwater dispersion is greatly influenced by the water-air temperature difference.

The actual concentration ratios derived varied widely and, as noted in the study, may be open to considerable argument because of the numerous simplifications made. Nonetheless, the study further noted that "it is likely that diffusion over rather small inland water bodies is different enough from that over the adjoining land to indicate that this difference should be considered in environmental evaluations of the effects of shoreline and over water pollution sources."

As a result, it is expected that effluent plumes originating at CCNPP Unit 3 and moving over the Chesapeake Bay will experience less efficient atmospheric dispersion than plumes that stay over land. Although less, there still will be important dispersion before the plume reaches receptors at the closest point in Eastern Maryland across Chesapeake Bay, a distance of approximately 7 miles (11 km). For example, the distance to the maximum concentration for a release from the CCNPP Unit 3 stack (62 meters above grade), under the most stable atmospheric conditions, is between 4 and 5 miles (6 and 8 km), which is considerably less than the distance to the Eastern shoreline (Turner, 1970, Figure 3-9).

Since potential recirculation of normal effluent was accounted for in Section 2.3.5.2, it is concluded that the atmospheric dispersion information provided for CCNPP Unit 3 is deemed acceptable.

2.3.5.5 References

NRC, 1977a. Methods for Estimating Atmospheric Transport and Dispersion of Gaseous Effluents in Routine Releases From Light-Water-Cooled Reactors, Regulatory Guide 1.111, Revision 1, U.S. Nuclear Regulatory Commission, July 1977.

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2.3.6 References

No departures or supplements.

Table 2.3-1 — {National Ambient Air Quality Standards}

Pollutant	Primary Standards	Averaging Times	Secondary Standards
Carbon Monoxide	9 ppm (10 mg/m^3)	8 hour(1)	None
	35 ppm (40 mg/m^3)	1 hour(1)	None
Lead	1.5 µg/m^3	Quarterly Average	Same as Primary
Nitrogen Dioxide	0.053 ppm (100 µg/m^3)	Annual (Arithmetic Mean)	Same as Primary
Particulate Matter (PM_{10})	Revoked(2)	Annual(2) (Arithmetic Mean)	
	150 µg/m^3	24 hour(3)	
Particulate Matter ($PM_{2.5}$)	15.0 µg/m^3	Annual(4) (Arithmetic Mean)	Same as Primary
	35 µg/m^3	24 hour(5)	
Ozone	0.08 ppm	8 hour(6)	Same as Primary
	0.12 ppm	1 hour(7) (Applies only in limited areas)	Same as Primary
Sulfur Oxides	0.03 ppm	Annual (Arithmetic Mean)	-------
	0.14 ppm	24 hour(1)	-------
	-------	3 hour(1)	0.5 ppm (1,300 µg/m^3)

Notes:
(1) Not to be exceeded more than once per year.
(2) Due to a lack of evidence linking health problems to long-term exposure to coarse particle pollution, the agency revoked the annual PM_{10} Standard in 2006 (effective December 17, 2006).
(3) Not to be exceeded more than once per year on average over three years.
(4) To attain this standard, the three year average of the weighted annual mean $PM_{2.5}$ concentrations from single or multiple community-oriented monitors must not exceed 15.0 µg/m^3.
(5) To attain this standard, the three year average of the 98th percentile of 24 hour concentrations at each population-oriented monitor within an area must not exceed 35 µg/m^3 (effective December 17, 2006).
(6) To attain this standard, the three year average of the fourth-highest daily maximum 8 hour average ozone concentrations measured at each monitor within an area over each year must not exceed 0.08 ppm.
(7) (a) The standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above 0.12 ppm is < 1, as determined by Appendix H.
(b) As of June 15, 2005 EPA revoked the 1 hour ozone standard in all areas except the fourteen 8 hour ozone nonattainment Early Action Compact Areas.

Table 2.3-2 — {Total and Average Numbers of Tropical Storms and Hurricanes}

Month	Tropical Storms(1)		Hurricanes		U.S. Hurricanes	
	Total	Average	Total	Average	Total	Average
January-April	5	*	1	*	0	0.00
May	18	0.1	4	*	0	0.00
June	76	0.5	28	0.2	19	0.12
July	94	0.6	47	0.3	23	0.15
August	336	2.2	214	1.4	74	0.48
September	448	2.9	309	2.0	102	0.67
October	273	1.8	154	1.0	50	0.33
November	58	0.4	38	0.2	5	0.03
December	8	0.1	4	*	0	0.00
Year	1,316	8.5	799	5.2	273	1.78

Notes:
(1) Includes subtropical storms after 1967.
* Less than 0.05.

Table 2.3-3 — {Monthly Mean Number of Days with Thunderstorms}

SITE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
Baltimore/Washington International Airport	0.3	0.2	0.8	2.4	4.0	5.4	5.8	4.9	2.0	1.0	0.4	0.1	27.3
Norfolk, VA	0.4	0.6	1.9	2.7	5.0	5.6	8.0	6.5	2.7	1.3	0.5	0.4	35.6
Richmond, VA	0.2	0.4	1.6	2.5	5.3	6.5	8.1	6.2	2.9	1.0	0.6	0.2	35.5

Table 2.3-4 — {High Winds by Storm Type for Calvert County}

Date	Time	Wind Speed Knots (m/sec)	Storm Type
6/3/1980	4:20 PM	52 (27)	Thunderstorm
7/1/1990	2:15 PM	52 (27)	Thunderstorm
5/4/1996	9:08 PM	60 (31)	Thunderstorm
10/8/1996	2:30 PM	67 (34)	High Wind
1/13/2000	12:00 PM	56 (29)	High Wind
4/21/2000	3:00 PM	90 (46)	Thunderstorm
3/13/2001	10:20 PM	52 (27)	Thunderstorm
6/11/2003	9:35 PM	50 (26)	Thunderstorm
6/27/2003	2:38 PM	50 (26)	Thunderstorm
7/18/2003	3:55 PM	50 (26)	Thunderstorm
8/5/2003	9:00 PM	50 (26)	Thunderstorm
8/16/2003	4:11 PM	50 (26)	Thunderstorm
8/26/2003	4:15 PM	55 (28)	Thunderstorm
5/25/2004	9:05 PM	50 (26)	Thunderstorm
7/5/2005	6:45 PM	50 (26)	Thunderstorm
1/14/2006	5:15 PM	52 (27)	High Wind
9/1/2006	11:00 AM	55 (28)	High Wind

Table 2.3-5 — {Hail Events in Calvert County}

Date	Time	Type	Diameter
10/9/1962	6:00 AM	Hail	0.75 in (19.05 mm)
4/1/1993	5:45 PM	Hail	0.88 in (22.35 mm)
9/26/1994	4:25 PM	Hail	0.75 in (19.05 mm)
7/15/1996	3:07 PM	Hail	2.00 in (50.80 mm)
3/29/1997	1:30 PM	Hail	1.75 in (44.45 mm)
6/15/1998	5:45 PM	Hail	1.75 in (44.45 mm)
6/15/1998	6:55 PM	Hail	0.75 in (19.05 mm)
4/9/1999	5:30 PM	Hail	1.50 in (38.10 mm)
4/9/1999	5:30 PM	Hail	1.25 in (31.75 mm)
4/9/1999	5:30 PM	Hail	1.00 in (25.40 mm)
4/23/1999	3:40 PM	Hail	1.00 in (25.40 mm)
4/23/1999	3:45 PM	Hail	1.50 in (38.10 mm)
4/23/1999	4:42 PM	Hail	0.75 in (19.05 mm)
4/23/1999	4:42 PM	Hail	1.50 in (38.10 mm)
4/21/2000	5:15 PM	Hail	1.00 in (25.40 mm)
7/16/2000	1:30 PM	Hail	0.88 in (22.35 mm)
4/28/2002	6:25 PM	Hail	1.75 in (44.45 mm)
4/28/2002	6:35 PM	Hail	1.75 in (44.45 mm)
5/5/2004	5:35 PM	Hail	0.88 in (22.35 mm)
4/23/2005	4:23 PM	Hail	0.75 in (19.05 mm)

Table 2.3-6 — {Ice Storm Events Within the General Region of the Site}

(Page 1 of 6)

Locations/Counties	Start Date and Time	End Date and Time	Ice Thickness
Upper Chesapeake Bay	Dec, 1958	Jan, 1959	Up to 24 inches (610 mm) of ice build-up on the Upper Chesapeake Bay.
State	1/20/1959 (AM)	Not Recorded	Freezing Rain, ice thickness not recorded.
State	2/18/1960	2/19/1960	Ice accumulation on roadways associated with large snow storm. Ice thickness not recorded.
State	12/24/1961	Not Recorded	Ice accumulation on roadways. Ice thickness not recorded.
Central and Western Maryland	12/9/1962	Not Recorded	Ice accumulation on roadways. Ice thickness not recorded.
State	12/22/1962	Not Recorded	Freezing Rain, ice thickness not recorded.
Central and Western Maryland	12/29/1962	12/31/1962	Ice accumulation on roadways. Ice thickness not recorded.
State	1/1/1964	1/2/1964	Freezing rain followed by sub-freezing temperature resulted in ice accumulation on roadways and walkways. Ice thickness not recorded.
Northern Counties (Greater than 50 mi (80 km) of the site)	1/23/1965	1/24/1965	Freezing rain resulted in ice accumulation of 0.5 to 1 inch (13 to 25 mm) thick.
Western Allegany and Garrett Counties (Greater than 50 mi (80 km) of the site)	3/26/1965	Not Recorded	Ice accumulations of 2 to 4 inches (51 to 102 mm) thick.
Western Mountains (Greater than 50 mi (80 km) of the site)	3/7/1967 (AM)	3/7/1967 (PM)	Ice accumulation up to 1 inch (25 mm) near Thurmont above 1400 ft elevation. Ice accumulation up to 0.5 inches (13 mm) in Garrett County.
Western Maryland (Greater than 50 mi (80 km) of the site)	12/10/1967	12/11/1967	Freezing rain resulted in ice accumulation up to 2 inches (51 mm) thick.
State	1/2/1968 (late PM)	1/3/1968 (AM)	Freezing rain on roadways. Ice thickness not recorded.
State	1/3/1968 (PM)	1/4/1968 (AM)	Freezing rain on roadways. Ice thickness not recorded.
Chesapeake Bay	1/8/1968	1/13/1968	Ice accumulation on Chesapeake Bay. No ice thickness recorded.
Northern Maryland	1/8/1969 (late PM)	1/9/1969 (AM)	Freezing rain on roadways. Ice thickness not recorded.
Upper Chesapeake Bay	1/10/1969	1/16/1969	8 to 10 inches (203 to 254 mm) of ice buildup on Chesapeake Bay, with as much as 14 inches (356 mm) near Tolchester Beach.
State except southern most areas	1/28/1969 (late PM)	1/29/1969 (PM)	Freezing rain. No ice thickness recorded.
Southeast Shore	2/18/1969 (AM)	Not Recorded	Ice accumulation on roadways. Ice thickness not recorded.
Central Eastern Shore	2/2/1970	Not Recorded	Strong winds blew an ice-flow onto shore. Ice thickness not recorded.
Central Maryland, including Eastern Shore	2/14/1970 (AM)	2/16/1970 (AM)	Freezing rain resulting in ice accumulation as thick as 3/8 inch (10 mm)
Central Eastern Shore	2/17/1970	Not Recorded	Freezing rain. No ice thickness recorded.

Table 2.3-6 — {Ice Storm Events Within the General Region of the Site}
(Page 2 of 6)

Locations/Counties	Start Date and Time	End Date and Time	Ice Thickness
Garrett County (Greater than 50 mi (80 km) of the site)	12/21/1970 (PM)	12/22/1970 (AM)	Ice storm with ice accumulation as thick as 2 inches (51 mm) in the eastern parts of Garrett County, and as thick as 1 inch (25 mm) in the western parts.
Northern Maryland	1/4/1971 (AM)	Not Recorded	Freezing rain resulting in ice accumulation on roadways. Ice thickness not recorded.
Northern Maryland including Washington D.C.	1/13/1971 (PM)	1/14/1971 (PM)	Thick ice coatings on roadways. No ice thickness recorded.
State	1/13/1978 (AM)	1/14/1978	Freezing rain causing ice accumulation. Ice thickness not recorded.
State	1/17/1978	1/18/1978	Freezing rain causing ice accumulation on roadways. Ice thickness not recorded.
Western and Northern Maryland	12/19/1978 (PM)	12/20/1978 (AM)	Freezing rain causing ice accumulation on roadways. Ice thickness not recorded.
State	1/12/1979 (AM)	1/13/1979 (AM)	Freezing rain causing ice accumulation on roadways. Ice thickness not recorded.
Western Maryland	1/17/1979	Not Recorded	Freezing rain causing ice accumulation. Ice thickness not recorded.
State	1/20/1979	Not Recorded	Freezing rain causing ice accumulation. Ice thickness not recorded.
Central and Eastern Shore	2/15/1979	Not Recorded	Freezing rain causing ice accumulation on roadways. Ice thickness not recorded.
Central Maryland	2/21/1979 (AM)	Not Recorded	Freezing rain causing ice accumulation on roadways. Ice thickness not recorded.
North Central and Western Maryland	11/17/1980	11/18/1980	Freezing rain causing ice accumulation. Ice thickness not recorded.
State	12/23/1980 (AM)	Not Recorded	Light rain followed by sub-freezing temperature resulted in coating of ice on roadways. Ice thickness not recorded.
Northeast and Central Maryland	12/1/1981 (AM)	Not Recorded	Freezing rain causing ice accumulation on roadways. Ice thickness not recorded.
Chesapeake Bay	Dec-81	Mar-82	Extensive ice formations on the bay.
North Central	1/3/1982 (AM)	Not Recorded	Freezing rain causing ice accumulation on roadways and walkways. Ice thickness not recorded.
Central and Northern Maryland and the District of Columbia	1/22/1982 (Late PM)	1/23/1982 (AM)	Freezing rain causing ice accumulation on roadways. Ice thickness was 0.25 to 0.5 inches (6 to 13 mm).
North Central and Northeastern Maryland	2/1/1982	2/3/1983	Flooding caused large ice chunks to be carried onto roadways, causing blockage. Ice thickness not recorded.
Frederick County (Greater than 50 mi (80 km) of the site)	2/18/1982	2/19/1982	Snow and sleet resulted in 1 to 2 inches (25 to 51 mm) of icy accumulation.
Garrett County	3/6/1982 (7:00 PM)	3/6/1982 (9:00 PM)	Freezing rain causing ice accumulation on roadways. Ice thickness not recorded.
North Central Maryland and District of Columbia	1/5/1983 (AM)	Not Recorded	Freezing rain causing ice accumulation on roadways. Ice thickness not recorded.
North Central Maryland	1/31/1983 (AM)	Not Recorded	Rain followed by sub-freezing temperatures caused ice accumulation on roadways. Ice thickness not recorded.

Table 2.3-6 — {Ice Storm Events Within the General Region of the Site}
(Page 3 of 6)

Locations/Counties	Start Date and Time	End Date and Time	Ice Thickness
Garrett and Allegany Counties	12/3/1983 (PM)	12/4/1983 (PM)	Freezing rain causing ice accumulation on roadways. Ice thickness not recorded.
State except southeastern and far western counties	12/21/1983 (PM)	12/22/1983 (AM)	Freezing rain causing ice accumulation. Ice thickness not recorded.
Northern Maryland and District of Columbia	12/28/1983 (AM)	Not Recorded	Freezing rain causing ice accumulation on roadways. Ice thickness not recorded.
Central and North Central Maryland and the District of Columbia	1/13/1984 (PM)	1/14/1984 (AM)	Freezing rain causing ice accumulation on roadways. Ice thickness not recorded.
North Central and Western Maryland	1/24/1984 (Early AM)	Not Recorded	Light rain followed by sub-freezing temperatures caused ice accumulations on roadways. Ice thickness not recorded.
Frederick, Washington, Allegany and Garrett counties	2/27/1984	2/28/1984 (AM)	Freezing rain causing ice accumulation on roadways. Ice thickness not recorded.
Central and Western Maryland and Washington D.C.	3/13/1984 (Early AM)	Not Recorded	Freezing rain resulting in 1 to 2 inches (25 to 51 mm) of mixed frozen precipitation.
Baltimore, Hartford, Howard and Prince George's Counties	1/3/1985 (2:00 AM)	1/3/1985 (9:00 AM)	Winter storm caused ice coatings on bridges and elevated roadways. Ice thickness not recorded.
State	2/5/1985 (2 PM)	2/6/1985 (12:00 PM)	Freezing rain causing ice accumulation on roadways. Ice thickness not recorded.
Garrett and Allegany Counties	12/2/1986 (12:00 AM)	12/3/1986 (12:00 AM)	Ice accumulation on trees and power lines. No ice thickness recorded.
District of Columbia	1/18/1987 (5:00 AM)	1/18/1987 (8:00 AM)	Ice covered roads. No ice thickness recorded.
Garrett, Allegany and Washington Counties	2/8/1987 (8:00 PM)	Not Recorded	Freezing rain causing ice accumulation on roadways. Ice thickness not recorded.
Garrett, Allegany, Washington, Frederick, Carroll and Northern Baltimore Counties	11/11/1987 (3:00 AM)	Not Recorded	Winter storm caused ice accumulations. No ice thickness recorded.
Carroll and Hartford Counties and the District of Columbia	3/6/1989 (2:30 AM)	Not Recorded	Winter storm with freezing rain, sleet and snow. Total mixed accumulation of 3 inches (76 mm). Ice thickness not recorded.
Carroll, Northern Baltimore and Hartford Counties	1/4/1990 (5:00 AM)	1/4/1990 (10:00 AM)	Rain and sub-freezing temperatures caused ice accumulation on roadways. Ice thickness not recorded.
Carroll and Montgomery Counties and the District of Columbia	1/8/1990 (6:00 AM)	1/8/1990 (8:00 PM)	Freezing rain causing ice accumulation on roadways. Ice thickness not recorded.
Carroll and Montgomery Counties	1/8/1991 (6:00 PM)	1/9/1991 (6:00 AM)	Freezing rain causing ice accumulation on roadways, trees and power lines. Ice thickness not recorded.
Carroll and Northern Baltimore Counties and the District of Columbia	1/10/1991 (6:00 AM)	1/10/1991 (10:00 AM)	Freezing rain causing ice accumulation on roadways. Ice thickness not recorded.
Carroll and Hartford Counties	12/23/1991 (6:00 AM)	12/23/1991 (8:30 AM)	Freezing rain causing ice accumulation on roadways, trees and power lines. Ice thickness not recorded.

Table 2.3-6 — {Ice Storm Events Within the General Region of the Site}

(Page 4 of 6)

Locations/Counties	Start Date and Time	End Date and Time	Ice Thickness
Carroll, Hartford, and Cecil Counties	12/28/1991 (12:00 PM)	12/29/1991 (4:00 AM)	Freezing rain causing ice accumulation on roadways, trees and power lines. Ice thickness not recorded.
Frederick, Carroll, Northern Baltimore, Hartford, Cecil and Montgomery Counties and the District of Columbia	1/27/1992 (11:00 PM)	1/28/1992 (12:00 PM)	Freezing rain causing ice accumulation on roadways, trees and power lines. Ice thickness not recorded.
Frederick, Carroll, Northern Baltimore, Hartford, Cecil and Montgomery Counties and the District of Columbia	2/13/1992 (1:00 AM)	2/13/1992 (6:00 PM)	Freezing rain. Ice thickness not recorded.
Cecil and Montgomery Counties	3/18/1992 (2:00 PM)	3/19/1992 (12:00 AM)	Snow mixed with sleet and freezing rain. No ice thickness reported.
Allegany, Anne Arundel, Calvert, Caroline, Carroll, Cecil, Charles, Dorchester, Frederick, Garrett, Harford, Howard, Inland Worcester, Kent, Maryland Beaches, Montgomery, Northern Baltimore, Prince Georges, Queen Annes, Somerset, Southern Baltimore, St. Mary's, Talbot, Washington, Wicomico	2/12/1993 - time not reported	Not Reported	Ice accumulations were reported across north-central and western Maryland; thicknesses were not reported
Anne Arundel, Howard, Montgomery, Prince Georges, Southern Baltimore	29 Jan 1998, 05:00:00 AM EST	29 Jan 1998, 09:00:00 AM EST	Abundant black ice in the Maryland suburbs of Washington, DC and Baltimore
Dorchester, Inland Worcester, Maryland Beaches, Somerset, Wicomico	23 Dec 1998, 02:00:00 PM EST	25 Dec 1998, 05:00:00 AM EST	0.25 to 0.75 in (6.4 to 19.1 mm)
Anne Arundel, Charles, Howard, Montgomery, Prince Georges, Southern Baltimore	08 Jan 1999, 02:00:00 AM EST	09 Jan 1999, 04:00:00 AM EST	A trace to 0.33 in (8.5 mm) on top of snowfall
Calvert, Charles, St. Mary's	14 Jan 1999, 01:00:00 AM EST	15 Jan 1999, 11:00:00 AM EST	A trace to 0.25 in (6.4 mm) in Charles, Calvert, and St. Mary's counties, 0.25 to 1 in (6.4 to 25.4 mm) elsewhere across Western and Central Maryland
Dorchester	30 Jan 2000, 07:00:00 AM EST	30 Jan 2000, 11:00:00 PM EST	Up to 0.25 in (6.4 mm) for portions of southern Maryland, including Dorchester county.
Calvert, Charles, St. Mary's	30 Jan 2000, 03:00:00 AM EST	30 Jan 2000, 08:00:00 PM EST	0.25 to 1 in (6.4 to 25.4 mm) in St. Mary's, Charles, and Calvert Counties.
Allegany, Charles, Harford, Howard, Northern Baltimore, Prince Georges	13 Dec 2000, 06:00:00 PM EST	14 Dec 2000, 08:00:00 AM EST	From Carroll and Montgomery Counties westward 0.25 to 0.5 in (6.4 to 12.7 mm)
Dorchester, Inland Worcester, Somerset, Wicomico	04 Dec 2002, 10:00:00 PM EST	05 Dec 2002, 02:30:00 PM EST	Less than 0.25 in (6.4 mm) of ice across portions of the Lower Maryland Eastern Shore.
Anne Arundel, Prince Georges	11 Dec 2002, 12:00:00 AM EST	11 Dec 2002, 09:00:00 AM EST	0.25 to 1 in (6.4 to 25.4 mm)

Table 2.3-6 — {Ice Storm Events Within the General Region of the Site}
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Locations/Counties	Start Date and Time	End Date and Time	Ice Thickness
Caroline, Cecil, Kent, Queen Annes, Talbot	29 Jan 2003, 03:00:00 AM EST	29 Jan 2003, 06:00:00 PM EST	0.02 in (0.51 mm) to exposed surfaces.
Dorchester, Inland Worcester, Maryland Beaches, Somerset, Wicomico	15 Feb 2003, 04:00:00 PM EST	17 Feb 2003, 04:00:00 PM EST	Some ice, across the Lower Maryland Eastern Shore; thicknesses were not reported
Anne Arundel, Calvert, Charles, Harford, Montgomery, Northern Baltimore, Prince Georges, Southern Baltimore	14 Dec 2003, 03:00:00 AM EST	14 Dec 2003, 07:00:00 PM EST	Some light ice accumulations were reported; thicknesses were not recorded
Allegany, Anne Arundel, Calvert, Carroll, Charles, Frederick, Harford, Northern Baltimore, Prince Georges, Southern Baltimore, St. Mary's, Washington	14 Dec 2003, 03:00:00 AM EST	14 Dec 2003, 07:00:00 PM EST	Up to 0.2 in (5.1 mm)
Anne Arundel, Carroll, Frederick, Howard, Montgomery, Northern Baltimore, Prince Georges, Southern Baltimore, Washington	05 Feb 2004, 05:00:00 PM EST	06 Feb 2004, 08:00:00 PM EST	0.1 to 0.2 in (2.5 to 5.1 mm)
Caroline, Cecil, Kent, Queen Annes, Talbot	19 Dec 2004, 07:00:00 PM EST	20 Dec 2004, 06:00:00 AM EST	Black ice to formed on area roadways and walkways; thicknesses were not reported.
Dorchester, Wicomico	22 Jan 2005, 11:00:00 AM EST	22 Jan 2005, 09:00:00 PM EST	0.13 to 0.25 in (3.2 to 6.4 mm) across portions of the Lower Maryland Eastern Shore
Caroline, Queen Annes, Talbot	29 Jan 2005, 08:00:00 PM EST	30 Jan 2005, 03:00:00 PM EST	Up to 0.25 in (6.4 mm) on exposed surfaces
Caroline, Queen Annes, Talbot	30 Jan 2005, 12:00:00 AM EST	30 Jan 2005, 05:00:00 PM EST	0.13 in (3.2 mm) across the Lower Maryland Eastern Shore.
Caroline, Queen Annes, Talbot	07 Feb 2005, 08:00:00 PM EST	08 Feb 2005, 06:00:00 AM EST	Black ice formed on untreated roadways across the lower Eastern Shore
Anne Arundel, Calvert, Charles, Harford, Howard, Montgomery, Northern Baltimore, Prince Georges, Southern Baltimore, St. Mary's	09 Dec 2005, 03:00:00 AM EST	09 Dec 2005, 08:00:00 AM EST	0.2 in (5.1 mm) or less.
Anne Arundel, Calvert, Carroll, Charles, Frederick, Harford, Howard, Montgomery, Northern Baltimore, Prince Georges, Southern Baltimore, St. Mary's, Washington	12 Feb 2007, 22:00:00 PM EST	14 Feb 2007, 12:00:00 PM EST	2/12: 0.5 in (12.7 mm) 2/13: 0.1 to 0.75 in (2.5 to 19.1 mm)

Table 2.3-6 — {Ice Storm Events Within the General Region of the Site}
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Locations/Counties	Start Date and Time	End Date and Time	Ice Thickness
Caroline, Talbot, Cecil	13 Feb 2007, 06:00:00 AM EST	13 Feb 2007, 18:00:00 PM EST	Up to 0.25 in (6.4 mm) in Cecil County
Caroline, Cecil, Kent, Queen Annes, Talbot	26 Feb 2007, 01:00:00 AM EST	25 Feb 2007, 11:00:00 AM EST	Up to 0.25 in (6.4 mm) in Cecil County.
Anne Arundel, Calvert, Carroll, Charles, Frederick, Harford, Howard, Montgomery, Northern Baltimore, Prince Georges, Southern Baltimore, Washington	17 Jan 2008, 11:00:00 AM EST	17 Jan 2008, 15:00:00 PM EST	A trace of ice
Anne Arundel, Carroll, Frederick, Harford, Howard, Montgomery, Northern Baltimore, Prince Georges, Southern Baltimore, Washington	12 Feb 2008, 05:00:00 AM EST	13 Feb 2008, 09:00:00 AM EST	Mostly ice was reported east into the Baltimore Metro and northern Washington DC suburbs.
Caroline, Talbot	14 Feb 2008, 00:00:00 AM EST	14 Feb 2008, 03:00:00 AM EST	Ice accretions were minimal.
Caroline, Cecil, Kent, Queen Annes, Talbot	21 Dec 2008, 03:00:00 AM EST	21 Dec 2008, 11:00:00 AM EST	0.2 in. (5.1 mm)
Charles, St. Mary's	27 Jan 2009, 08:00:00 AM EST	28 Jan 2009, 10:00:00 AM EST	0.1 in. (2.5 mm

Table 2.3-7 — {Snow Storm Events within the General Region of the Site}
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Locations/Counties	Date	Snow Amount
Allegany, Anne Arundel, Calvert, Caroline, Carroll, Cecil, Charles, Dorchester, Frederick, Garrett, Harford, Howard, Inland Worcester, Kent, Maryland Beaches, Montgomery, Northern Baltimore, Prince George's, Queen Anne's, Somerset, Southern Baltimore, St. Mary's, Talbot, Washington, Wicomico	02/12/93	4 to 6 inches (102 to 152 mm) of snow and ice accumulations across north-central and western Maryland.
St. Mary's, Queen Anne's, Prince George's, Dorchester, Calvert, Charles	12/28/93	Heavy Snow
Anne Arundel	12/28/93	Unrecorded
MDZ014	02/04/95	Unrecorded
Caroline, Queen Anne's, Talbot	12/19/95	Freezing rain to sleet and snow.
St. Mary's	01/28/95	4 to 5 inches (102 to 127 mm) of snow accumulation.
Dorchester	1/6/1996	Not recorded.
Caroline, Kent, Queen Anne's, Talbot	01/06/96	Winter storm
Anne Arundel, Charles, Harford, Northern Baltimore, Prince George's, Southern Baltimore, St. Mary's	01/09/96	4 to 6 inches (102 to 152 mm) of snow.
Allegany, Anne Arundel, Calvert, Carroll, Charles, Frederick, Harford, Howard, Montgomery, Northern Baltimore, Prince George's, Southern Baltimore, St. Mary's, Washington	01/12/96	4 to 6 inches (102 to 152 mm) of snow accumulation.
Allegany, Anne Arundel, Calvert, Carroll, Charles, Frederick, Harford, Howard, Montgomery, Northern Baltimore, Prince George's, Southern Baltimore, St. Mary's, Washington	02/02/96	4 to 13 inches (102 to 330 mm) of snow during an early-morning event and an additional 4 to 6 inches (102 to 152 mm) during the day, totaling 12 to 18 inches (305 to 457 mm) across lower southern Maryland. 6 to 9 inches (152 to 229 mm) of snowfall from the Potomac Highlands through the western suburbs of Baltimore and Washington.
Dorchester, Inland Worcester, Maryland Beaches, Somerset, Wicomico	02/02/96	Unrecorded
Calvert, Charles, Prince George's, St. Mary's	02/02/96	8 to 13 inches (203 to 330 mm) of snow accumulation.
Anne Arundel, Calvert, Carroll, Charles, Harford, Howard, Montgomery, Northern Baltimore, Prince George's, Southern Baltimore, St. Mary's	02/16/96	10 to 13 inches (254 to 330 mm) of snowfall on the western shore of Chesapeake Bay. 7 to 11 inches (178 to 279 mm) of snowfall over the immediate suburbs of Washington and Baltimore. 4 to 6 inches (102 to 152 mm) of snowfall over areas of north central Maryland.
Dorchester, Inland Worcester, Maryland Beaches, Somerset, Wicomico	02/16/96	Not recorded.
Dorchester, Inland Worcester, Maryland Beaches, Somerset, Wicomico	03/01/96	Not recorded.
Anne Arundel, Harford, Prince George's	03/02/96	4 inches (102 mm) of snow accumulation in northern Prince George's and eastern Anne Arundel Counties, with up to 6 inches (152 mm) of snow accumulation in portions of Harford County.
7 MDZ021>025	03/07/96	Not recorded.
Caroline, Cecil, Kent, Queen Anne's, Talbot	1/11/97	1.0 to 1.5 inches (25 to 38 mm) of snow accumulation.

Table 2.3-7 — {Snow Storm Events within the General Region of the Site}
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Locations/Counties	**Date**	**Snow Amount**
Dorchester, Inland Worcester, Maryland Beaches, Somerset, Wicomico	02/08/97	1.5 to 2 inches (38 to 51 mm) of snow across Somerset, Wicomico, and Worcester counties. 3 to 4.5 inches (76 to 114 mm) of snow accumulation across Dorchester county.
Allegany, Anne Arundel, Calvert, Carroll, Charles, Frederick, Harford, Howard, Montgomery, Northern Baltimore, Prince George's, Southern Baltimore, St. Mary's, Washington	02/08/97	4 to 8 inches (102 to 203 mm) of heavy, wet snow across central and northern Maryland
Caroline, Kent, Queen Anne's, Talbot	12/23/98	Cecil County snow accumulations included 4.3 inches (109 mm) in Cecilton and 3.0 inches (76 mm) in Elkton. Farther south snow accumulations were 1.5 inches (38 mm) or less.
Dorchester, Wicomico	1/8/99	Not recorded.
Anne Arundel, Charles, Howard, Montgomery, Prince George's, Southern Baltimore	1/8/99	5 to 6 inches (127 to 152 mm) of snowfall in Frederick, Washington and Allegany Counties. 4 to 5 inches (102 to 127 mm) of snowfall in Montgomery, Carroll, Howard, Harford, and Baltimore Counties. 2 to 4 inches (51 to 102 mm) of snowfall in Anne Arundel, Prince George's, and Charles Counties.
Dorchester, Inland Worcester, Somerset, Wicomico	03/09/99	2 to 6 inches (51 to 152 mm) of snowfall across portions of the Lower Maryland Eastern Shore. The highest amounts occurred in Dorchester and Wicomico counties. 5 to 6 inches (127 to 152 mm) of snowfall for Cambridge in Dorchester county. 4 to 6 inches (102 to 152 mm) of snowfall for Salisbury and Fruitland in Wicomico county. 4 inches (102 mm) of snowfall for Princess Anne in Somerset county.
Allegany, Anne Arundel, Calvert, Charles, Frederick, Howard, Montgomery, Prince George's, St. Mary's, Washington	03/09/99	6 to 10 inches (152 to 254 mm) of snowfall in Prince George's, Montgomery, and Allegany Counties. 4 to 8 inches (102 to 203 mm) of snowfall across Washington, Southern Frederick, Howard, Anne Arundel, Charles and Calvert Counties. 2 to 5 inches (51 to 127 mm) of snowfall across St. Mary's, Northern Frederick, Carroll, and Southern Baltimore Counties, including Baltimore City. 2 inches (51 mm) or less snowfall across Northern Baltimore County.
Anne Arundel, Charles, Howard, Prince George's	3/14/99	Total snow accumulations included 10 to 12 inches (254 to 305 mm) in Allegany County, 6 to 15 inches (152 to 381 mm) in Washington County, 6 to 12 inches (152 to 305 mm) in Frederick County, 5 to 10 inches (127 to 254 mm) in Carroll County, 4 inches (102 mm) in Howard County, and 2 to 3 inches (51 to 76 mm) in Southern Baltimore County, Northern Anne Arundel County, Prince George's, and Northern Charles Counties.
Dorchester	01/20/00	5 to 7 inches (127 to 178 mm) of snow.

Table 2.3-7 — {Snow Storm Events within the General Region of the Site}
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Locations/Counties	Date	Snow Amount
Allegany, Anne Arundel, Calvert, Carroll, Frederick, Harford, Howard, Montgomery, Northern Baltimore, Prince George's, Southern Baltimore, St. Mary's, Washington	01/20/00	Snowfall totals included 4.7 inches (119 mm) in Westminster, 7.0 inches (178 mm) in Bel Air, 5.0 inches (127 mm) in Baltimore, 7.5 inches (191 mm) in Annapolis, 5.7 inches (145 mm) at BWI, 4.8 inches (122 mm) at Andrews Air Force Base, 3.0 inches (76 mm) at Patuxent River Naval Air Station, 4.0 inches (102 mm) in La Plata, 6.2 inches (157 mm) in Damascus, 8.0 inches (203 mm) in Emmitsburg, 4.1 inches (104 mm) in Hagerstown, 6.5 inches (165 mm) in Cumberland, and 7.7 inches (196 mm) in Frostburg.
Dorchester	01/25/00	9 to 14 inches (229 to 356 mm) of snow.
Anne Arundel, Calvert, Carroll, Charles, Frederick, Harford, Howard, Montgomery, Northern Baltimore, Prince George's, Southern Baltimore, St. Mary's, Washington	01/25/00	Total snowfall included 14.9 inches (378 mm) at BWI, 17.0 inches (432 mm) in Annapolis, 16.5 inches (419 mm) in Hollywood, 14.0 inches (356 mm) in Westminster, 13.5 inches (343 mm) in Oxon Hill, 11.5 inches (292 mm) in Gaithersburg, 12.0 inches (305 mm) in Waldorf, 17.0 inches (432 mm) in Baltimore, 11.5 inches (292 mm) in Columbia, 14.0 inches (356 mm) in Bel Air, 9.0 inches (229 mm) in Frederick, 13.5 inches (343 mm) in Hagerstown, and less than 1 inch (25 mm) in Frostburg and Cumberland.
Calvert, Charles, St. Mary's	01/30/00	A mix of sleet and snow in North Central Maryland, and moderate snowfall from Carroll County westward. Elsewhere 3 to 10 inches (76 to 254 mm) of sleet and snowfall.
St. Mary's	02/12/00	Snowfall totals ranged from 2 to 3 inches (51 to 76 mm) across St. Mary's County.
Allegany, Charles, Harford, Howard, Northern Baltimore, Prince George's, Southern Baltimore	12/19/00	Snowfall totals ranged from 1 to 7 inches (25 to 178 mm) with the highest amounts falling across Frederick and Washington Counties and the smallest accumulations right along the Chesapeake Bay.
Caroline, Queen Anne's, Talbot	12/22/00	Snow accumulations included 2.5 inches (64 mm) in Federalsburg (Caroline County), 2 inches (51 mm) in Centreville (Queen Anne's County) and 1 inch (25 mm) in Easton (Talbot County).
Caroline, Cecil, Kent, Queen Anne's, Talbot	1/5/01	Snow accumulations were approximately 1 inch (25 mm).
Caroline, Kent, Queen Anne's, Talbot	1/20/01	Snow accumulations from 1 to 6 inches (25 to 152 mm) across the Eastern Shore.
Dorchester, Inland Worcester, Somerset, Wicomico	02/22/01	3 to 6 inches (76 to 152 mm) of snow across the Lower Maryland Eastern Shore. Specific snow totals include: 5 to 6 inches (127 to 152 mm) at Salisbury Airport in Wicomico county, 6 inches (152 mm) at Cambridge in Dorchester county, 5 inches (127 mm) north of Princess Anne in Somerset county, and 5 inches (127 mm) north of Snow Hill in Worcester county.
Allegany, Anne Arundel, Calvert, Carroll, Charles, Harford, Montgomery, Northern Baltimore, Prince George's, Southern Baltimore, St. Mary's	02/22/01	3 to 7 inches (76 to 178 mm) of snowfall.

Table 2.3-7 — {Snow Storm Events within the General Region of the Site}
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Locations/Counties	Date	Snow Amount
Dorchester, Inland Worcester, Maryland Beaches, Somerset, Wicomico	01/03/02	3 to 6 inches (76 to 152 mm) of snow across the Lower Maryland Eastern Shore. Specific higher snow totals include: 6 inches (152 mm) at Crisfield in Somerset county, 5 to 6 inches (127 to 152 mm) in Dorchester county, 6 inches (152 mm) at Pocomoke City in Worcester county, 3 to 5 inches (76 to 127 mm) in Wicomico county, 4 inches (102 mm) at Snow Hill in Worcester county, and 3 to 4 inches (76 to 102 mm) at Ocean City in Worcester county.
St. Mary's, Calvert, Charles	01/03/02	In St. Mary's County, snowfall ranged from 2.5 inches (64 mm) in the northern portion to 6.5 inches (165 mm) in the southern tip. In Charles County, snowfall ranged from 1 to 3 inches (25 to 76 mm) with the heaviest amounts in the extreme southern portion of the county.
Dorchester, Inland Worcester, Maryland Beaches, Somerset, Wicomico	01/16/03	3 to 5 inches (76 to 127 mm) of snow across the Lower Maryland Eastern Shore. Specific higher snow totals include: 5 inches (127 mm) at Princess Anne in Somerset county, 5 inches (127 mm) at Pocomoke in Worcester county, 4 inches (102 mm) in Dorchester county, and 4 inches (102 mm) in Wicomico county.
Allegany, Anne Arundel, Calvert, Carroll, Charles, Frederick, Howard, Montgomery, Prince George's, St. Mary's, Washington	01/19/02	3 to 5 inches (76 to 127 mm) of snow.
Dorchester, Inland Worcester, Somerset, Wicomico	12/04/02	2 to 5 inches (76 to 127 mm) of snow along with less than 1/4 inch (6 mm) of ice across portions of the Lower Maryland Eastern Shore. Specific snow totals include: 4.5 inches (114 mm) at Cambridge in Dorchester county, 3.5 inches (89 mm) at Salisbury in Wicomico county, 3 inches (76 mm) at Princess Anne in Somerset county, and 2 inches (51 mm) at Snow Hill in Worcester county.
Allegany, Anne Arundel, Calvert, Carroll, Charles, Frederick, Harford, Howard, Montgomery, Northern Baltimore, Prince George's, Southern Baltimore, St. Mary's, Washington	12/05/02	The snow and sleet accumulations ranged from 3 to 5 inches (76 to 127 mm) in this area. In Central Maryland, including the Washington D.C. and Baltimore suburbs, snowfall totals ranged from 6 to 8 inches (152 to 203 mm). 7 to 9 inches (178 to 229 mm) of snowfall accumulation across North Central and Western Maryland.
Anne Arundel, Harford, Howard, Montgomery, Southern Baltimore	12/24/02	2 to 4 inches (51 to 102 mm) of snowfall in Southern Frederick, Southern Carroll, Central Baltimore, Harford, Howard, and Northern Montgomery Counties.
Anne Arundel, Carroll, Harford, Howard, Northern Baltimore, Prince George's, Southern Baltimore, Washington	1/5/03	2 to 5 inches (51 to 127 mm) of snow across Central and Western Maryland
St. Mary's	01/16/03	Snowfall totals ranged from 2 inches (51 mm) in the northern part of the county to just over 5 inches (127 mm) at the southern tip.
Caroline, Cecil, Kent, Queen Anne's, Talbot	1/29/03	Snow accumulations were less than 1 inch (25 mm).
Dorchester	1/30/03	1 inch (25 mm) of snow across portions of Dorchester county.
Dorchester	02/06/03	3 to 7 inches (76 to 178 mm) of snow across Dorchester county. 6.5 inches (165 mm) in Cambridge and 3 inches in Vienna.

Table 2.3-7 — {Snow Storm Events within the General Region of the Site}
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Locations/Counties	Date	Snow Amount
Anne Arundel, Calvert, Carroll, Charles, Frederick, Harford, Howard, Montgomery, Northern Baltimore, Prince George's, Southern Baltimore, St. Mary's	02/06/03	Accumulations ranged from 2 to 4 inches (51 to 102 mm) across Western Maryland and 5 to 8 inches (127 to 203 mm) in Central and Southern Maryland.
Dorchester, Wicomico	2/10/03	0.5 inch to 2 inches (13 to 51 mm) of snow across portions of the Lower Maryland Eastern Shore. 2 inches (51 mm) of snow at Salisbury (SBY).
Caroline, Cecil, Kent, Queen Anne's, Talbot	2/10/03	No accumulation.
Dorchester, Inland Worcester, Maryland Beaches, Somerset, Wicomico	2/15/03	4 to 15 inches (102 to 381 mm) of snow, along with some ice, across the Lower Maryland Eastern Shore. Specific snowfall totals include: 15 inches (381 mm) in the far north portion of Dorchester County, 13 inches (330 mm) at Cambridge in Dorchester County, 10 inches (254 mm) in the southern portion of Dorchester County, 6 inches (152 mm) at Delmar in Wicomico County, 5 to 6 inches (127 to 152 mm) at Ocean City in Worcester County, and 4 inches (102 mm) at Salisbury in Wicomico County.
Caroline, Cecil, Kent, Queen Anne's, Talbot	2/15/03	Trace amounts of snow in Talbot County.
Caroline, Cecil, Kent, Queen Anne's, Talbot	2/16/03	Specific accumulations include 26.0 inches (660 mm) in Colora (Cecil County, but greater than 50 mi (80 km) from the site), 25.0 inches (635 mm) in Centreville (Queen Anne's County), 23.0 inches (584 mm) in Port Deposit (Cecil County), 22.5 inches (572 mm) in Chestertown (Kent County), 22.0 inches (559 mm) in Galena (Kent County), 20.0 inches (508 mm) in Denton (Caroline County), 19.0 inches (483 mm) in Saint Michaels (Talbot County) and 15.0 inches (381 mm) in Royal Oak (Talbot County).
Allegany, Anne Arundel, Calvert, Carroll, Charles, Frederick, Harford, Howard, Montgomery, Northern Baltimore, Prince George's, Southern Baltimore, St. Mary's, Washington	02/14/03	Across western and north central Maryland, and the Baltimore metropolitan area, accumulations of mainly snow ranged from 20 to 32 inches (508 to 813 mm). The highest amounts occurred across the north and west suburbs of Baltimore where a period of thunder snow produced snowfall rates up to 4 inches (102 mm) per hour on the 16th. Across the east and southeast Maryland suburbs of Washington D.C., accumulations of snow and sleet ranged from 12 to 20 inches (305 to 508 mm). Areas that received mainly sleet during this massive winter storm received accumulations around two thirds less than areas that had all snow, even though they were impacted by the same storm system. As an example, Hollywood (St. Mary's County) recorded 7.5 inches (191 mm) of accumulation (almost all sleet) whereas downtown Baltimore recorded 24 inches (610 mm) of accumulation (all snow).
Dorchester, Inland Worcester, Maryland Beaches, Somerset, Wicomico	02/26/03	1 to 7 inches (25 to 178 mm) of snow, along with some sleet and freezing rain, across the Lower Maryland Eastern Shore. Specific snow totals include: 7 inches (178 mm) at Cambridge in Dorchester county, 3 inches (76 mm) at Hurlock in Dorchester county, 2 to 2.5 inches (51 to 64 mm) at Salisbury in Wicomico county, and 1 inch (25 mm) at Ocean City in Worcester county.

Table 2.3-7 — {Snow Storm Events within the General Region of the Site}
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Locations/Counties	Date	Snow Amount
Allegany, Anne Arundel, Calvert, Carroll, Charles, Frederick, Harford, Howard, Montgomery, Northern Baltimore, Prince George's, Southern Baltimore, St. Mary's, Washington	02/26/03	A total of 5 to 8 inches (127 to 203 mm) of snow accumulated across Central and Southern Maryland and 2 to 4 inches (51 to 102 mm) in Western Maryland.
Caroline, Queen Anne's, Talbot	2/27/03	Specific accumulations included 7.0 inches (178 mm) in Easton (Talbot County), 6.5 inches (165 mm) in Stevensville (Queen Anne's County), 5.5 inches (140 mm) in Denton (Caroline County), 4.0 inches (102 mm) in Rock Hall (Kent County) and 2.5 inches (64 mm) in Elkton and Port Deposit (Cecil County).
Anne Arundel, Calvert, Prince George's	12/04/03	Snow totals averaged 1 to 2 inches (25 to 51 mm).
Caroline, Kent, Queen Anne's, Talbot	12/5/03	Accumulations ranged from 2 inches (51 mm) in Talbot and Caroline Counties to around 12 inches (305 mm) in Cecil County.
Dorchester	12/6/03	1 to 2 inches (25 to 51 mm) of snow fell across portions of the county, with Cambridge reporting as much as 2.5 inches (64 mm).
Anne Arundel, Calvert, Charles, Harford, Montgomery, Northern Baltimore, Prince George's, Southern Baltimore	12/14/03	Snowfall totals across Central and Lower Southern Maryland averaged 1 to 3 inches (25 to 76 mm). Some light ice accumulations were also reported.
Allegany, Anne Arundel, Calvert, Carroll, Charles, Frederick, Harford, Northern Baltimore, Prince George's, Southern Baltimore, St. Mary's, Washington	01/17/04	Snow amounts from .25 to 2 inches (6 to 51 mm) across Maryland from Allegany down to St. Mary's County.
Dorchester, Inland Worcester, Maryland Beaches, Somerset, Wicomico	01/25/04	2 to 4 inches (51 to 102 mm) of snow and sleet fell across portions of the Lower Maryland Eastern Shore. Specific amounts included: 4.3 inches (109 mm) at Princess Anne in Somerset county, 3.8 inches (97 mm) at Salisbury in Wicomico county, 3.8 inches (97 mm) at Snow Hill in Worcester county, and 3 inches (76 mm) at Hurlock in Dorchester county.
Dorchester Calvert, Charles, St. Mary's	01/25/04	3 to 4 inches (76 to 102 mm) of snowfall over Lower Southern Maryland.
Caroline, Cecil, Kent, Queen Anne's, Talbot	01/27/04	Specific accumulations included 4.0 inches (102 mm) in Port Deposit (Cecil County) and Rock Hall (Kent County), 3.5 inches (89 mm) in Elkton (Cecil County), 3.0 inches (76 mm) in Conowingo (Cecil County), 1.5 inches (38 mm) in Chestertown (Kent County), 1.0 inch (25 mm) in Stevensville (Queen Anne's County) and traces in both Cordova (Talbot County) and Greensboro (Caroline County).
Dorchester, Inland Worcester, Maryland Beaches, Somerset, Wicomico	02/17/04	0.5 to 2 inches (13 to 51 mm) of snowfall across portions of the Lower Maryland Eastern Shore.
Dorchester, Inland Worcester, Maryland Beaches, Somerset, Wicomico	12/19/04	0.5 to 2 inches (13 to 51 mm) of snowfall across the Lower Maryland Eastern Shore. Amounts include 1.5 inch (38 mm) at Princess Anne in Somerset county, 1 inch (25 mm) at Salisbury in Wicomico county and at Snow Hill in Worcester county.
Caroline, Cecil, Kent, Queen Anne's, Talbot	12/19/04	Snowfall accumulations were 1 inch (25 mm) or less; black ice formed on area roadways and walkways.

Table 2.3-7 — {Snow Storm Events within the General Region of the Site}
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Locations/Counties	Date	Snow Amount
Dorchester, Inland Worcester, Maryland Beaches, Somerset, Wicomico	01/19/05	0.5 to 1.5 inches (13 to 38 mm) of snowfall across the Lower Maryland Eastern Shore.
Caroline, Cecil, Kent, Queen Anne's, Talbot	01/19/05	Accumulations averaged 2 inches (51 mm) and that specific amount accumulated in Ridgely (Caroline County), Barclay (Queen Anne's County) and Easton (Talbot County).
Dorchester, Wicomico	1/22/05	A mixture of snow, sleet and freezing rain produced 2 to 4 inches (51 to 102 mm) of snow, and 1/8 to 1/4 of an inch (3 to 6 mm) of ice across portions of the Lower Maryland Eastern Shore.
Caroline, Cecil, Kent, Queen Anne's, Talbot	1/22/05	Specific snowfall accumulations were 9 inches (229 mm) in Elkton (Cecil County), 8 inches (203 mm) in Chestertown (Kent County), 7.5 inches (191 mm) in Port Deposit (Cecil County), 6.3 inches (160 mm) in Stevensville (Queen Anne's County), 6 inches (152 mm) in Denton (Caroline County) and 4.0 inches (102 mm) in Easton (Talbot County).
Caroline, Queen Anne's, Talbot	1/29/05	Snow accumulations averaged 3 inches (76 mm) in the northern part of the Eastern Shore and between 3 and 4 inches (76 to 102 mm) in the southern part of the Eastern Shore. In addition to the snow, southern parts of the Eastern Shore also received some sleet and up to 0.25 inches (6 mm) of ice that accrued onto exposed surfaces.
Dorchester, Inland Worcester, Maryland Beaches, Somerset, Wicomico	1/30/05	A mixture of snow, sleet and freezing rain produced 0.5 to 2 inches (13 to 51 mm) of snow, and around 1/8 of an inch (3 mm) of ice across the Lower Maryland Eastern Shore.
Dorchester, Inland Worcester, Maryland Beaches, Somerset, Wicomico	2/24/05	1 to 3 inches (25 to 51 mm) of snow fell across the Lower Maryland Eastern Shore. The highest snow amounts were 3 inches (51 mm) at Fruitland in Wicomico county, 3 inches (51 mm) at Salisbury in Wicomico county, 2.8 inches (71 mm) at Vienna in Dorchester county, 2.5 inches (64 mm) at Cambridge in Dorchester county, 2.3 inches (58 mm) at Deal Island in Somerset county, and 2 inches (51 mm) at Pocomoke City in Worcester county.
Allegany, Anne Arundel, Calvert, Carroll, Charles, Frederick, Harford, Howard, Montgomery, Northern Baltimore, Prince George's, Southern Baltimore	2/24/05	Snow totals for this event was 4 to 8 inches (102 to 203 mm).
Caroline, Talbot	2/28/05	Accumulations averaged 1 to 2 inches (25 to 51 mm) in Talbot and Caroline Counties and 3 to 5 inches (76 to 127 mm) elsewhere across the Eastern Shore. Specific accumulations included 5.0 inches (127 mm) in Elkton (Cecil County). 4.7 inches (119 mm) in Stevensville (Queen Anne's County), 4.5 inches (114 mm) in Conowingo (Cecil County), 4.0 inches (102 mm) in Kennedyville (Kent County), 2.0 inches (51 mm) in Goldsboro (Caroline County) and 1.0 inch (25 mm) in Saint Michaels (Talbot County).
Caroline, Cecil, Kent, Queen Anne's, Talbot	3/8/05	Accumulations were less than 1 inch (25 mm) in most places, but a sharp drop in temperatures brought treacherous driving conditions on untreated roadways during the afternoon and evening.
Dorchester, Inland Worcester, Maryland Beaches, Somerset, Wicomico	3/8/05	0.5 to 1 inch (13 to 25 mm) of snowfall across portions of the Lower Maryland Eastern Shore.

Table 2.3-7 — {Snow Storm Events within the General Region of the Site}
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Locations/Counties	Date	Snow Amount
Dorchester, Somerset, Wicomico	12/05/05	3 to 6 inches (76 to 152 mm) of snow and sleet across portions of the Lower Maryland Eastern Shore.
Anne Arundel, Carroll, Frederick, Harford, Howard, Montgomery, Northern Baltimore, Southern Baltimore	12/05/05	Storm total snowfall was between 0 to 4 inches (0 to 102 mm) in some spots.
Calvert, Charles, Prince George's, St. Mary's	12/06/05	Storm total snowfall was between 4 to 6.5 inches (102 to 165 mm).
Anne Arundel, Calvert, Charles, Harford, Howard, Montgomery, Northern Baltimore, Prince George's, Southern Baltimore, St. Mary's	12/09/05	Generally, storm total snowfall ranged between 1 to 4 inches (25 to 102 mm), while ice accumulations were two-tenths of an inch (5 mm) or less.
Allegany, Anne Arundel, Calvert, Carroll, Charles, Frederick, Harford, Howard, Montgomery, Northern Baltimore, Prince George's, Southern Baltimore, St. Mary's, Washington	02/11/06	Storm total snowfall across much of Maryland ranged generally between 8 to 14 inches (203 to 356 mm). Across portions of the northern Washington DC suburbs and the Baltimore suburbs of Maryland, where localized snowfall ranged between 14 to 22 inches (356 to 559 mm). The highest snowfall total occurred at Columbia Hills, MD, in Howard County, where snowfall was 22.5 inches (572 mm).
Dorchester	02/12/06	4 to 7 inches (102 to 178 mm) of snow across Dorchester county.
Caroline, Cecil, Kent, Queen Anne's, Talbot	02/12/06	The Eastern Shore picked up a significant amount of snow, especially locations farther to the north. Some specific amounts include, 15.0 inches (381 mm) in Elkton (Cecil County), 12.0 inches (305 mm) in Tolchester (Kent County), 8.0 inches (203 mm) in Ridgely (Caroline County), and 7.5 inches (191 mm) in Cordova (Talbot County).
Dorchester, Inland Worcester, Maryland Beaches, Somerset, Wicomico	01/21/07	0.5 to 1 inch (13 to 25 mm) of snow across portions of the Lower Maryland Eastern Shore
Charles, Prince George's, St. Mary's	01/21/07	Frostburg, MD, reported 3 inches (76 mm) of snow. Total accumulations ranging from 1 to 4 inches (25 to 102 mm) across the region.
Anne Arundel, Calvert, Carroll, Charles, Frederick, Harford, Howard, Montgomery, Northern Baltimore, Prince George's, Southern Baltimore, St. Mary's, Washington	02/12/07	2 tenths of an inch (5 mm) of ice in Huntingtown, MD. Snow and sleet accumulations ranged from 1 to 9 inches (25 to 229 mm) and ice accumulations ranged from a tenth to three quarters of an inch (3 to 19 mm).
Dorchester, Wicomico	2/6/07	0.5 inches (13 mm) of snow fell in Cambridge.
Anne Arundel, Carroll, Charles, Frederick, Harford, Howard, Montgomery, Northern Baltimore, Washington	2/6/07	Snow amounts ranged from 1 to 4 inches (25 to 102 mm) across northern and central Maryland.
Anne Arundel, Calvert, Carroll, Charles, Frederick, Harford, Howard, Montgomery, Northern Baltimore, Prince George's, Southern Baltimore, St. Mary's, Washington	02/12/07	On 2/12/07 1 to 4 inches (25 to 102 mm) of snow and sleet and between 0.25 and 0.50 inches of ice (6 to 13 mm). 2/13/07 Snow and sleet accumulations ranged from 1 to 9 inches (25 to 229 mm) and ice accumulations ranged from a tenth to three quarters of an inch (3 to 19 mm).
Caroline, Talbot	02/13/07	The most significant sleet and ice accumulations occurred in Cecil County where up to a quarter of an inch (6 mm) of ice downed trees and power lines. Some snow/sleet accumulations included 6.0 inches (152 mm) in the city of Conowingo (Cecil County) and 1.7 inches (43 mm) in Stevensville (Queen Anne's County).

Table 2.3-7 — {Snow Storm Events within the General Region of the Site}
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Locations/Counties	Date	Snow Amount
Anne Arundel, Calvert, Carroll, Charles, Frederick, Harford, Howard, Montgomery, Northern Baltimore, Prince George's, Southern Baltimore, St. Mary's, Washington	02/24/07	Anne Arundel County reported between 3 and 5 inches (76 to 127 mm) of snow.
Anne Arundel, Calvert, Carroll, Charles, Frederick, Harford, Howard, Montgomery, Northern Baltimore, Prince George's, Southern Baltimore, St. Mary's, Washington	02/24/07	In central and eastern Allegany County reported between 4 and 5 inches (102 to 127 mm) of snow.
Dorchester	02/25/07	3.5 inches (89 mm) of snow fell in Cambridge, 2.5 inches (64 mm) of snow fell in Church Creek, and 1.5 inches (38 mm) of snow fell in Vienna.
Caroline, Cecil, Kent, Queen Anne's, Talbot	02/25/07	Snowfall accumulations averaged 2 to 5 inches (56 to 127 mm) with up to around one quarter of an inch (6 mm) of ice accruing on exposed surfaces in Cecil County. Snowfall accumulations included 4.5 inches (114 mm) in Henderson (Caroline County), 4.0 inches (102 mm) in Rock Hall (Kent County), 3.9 inches (99 mm) in Stevensville (Queen Anne's County), 3.0 inches (76 mm) in St. Michaels (Talbot County) and at the Conowingo Dam (Cecil County) and 2.0 inches (51 mm) in Elkton (Cecil County) and Cordova (Talbot County).
Dorchester, Inland Worcester, Maryland Beaches, Somerset, Wicomico	03/07/07	Linkwood reported 1.5 inches (38 mm) of snow, and Cambridge reported 1.0 inch (25 mm) of snow.
Caroline, Talbot, Queen Anne's	03/07/07	Actual accumulations included 2.8 inches (71 mm) in Denton (Caroline County), 2.0 inches (51 mm) in Easton (Talbot County) and Ridgely (Caroline County), 1.8 inches (46 mm) in Stevensville (Queen Anne's County), 1.0 inches (25 mm) in Elkton (Cecil County) and 0.5 inches (13 mm) in Chestertown (Kent County).
Carroll, Charles, Frederick, Harford, Howard, Montgomery, Northern Baltimore, Southern Baltimore, Washington	3/7/07	6 to 10 inches (152 to 254 mm) of snow.
Anne Arundel, Carroll, Frederick, Harford, Howard, Montgomery, Northern Baltimore, Southern Baltimore, Washington	3/16/07	Snowfall amounts ranged from 2 to 10 inches (51 to 254 mm).
Charles, Prince George's	4/6/07	1 to 2 inches of snow (25 to 51 mm).
Anne Arundel, Carroll, Charles, Frederick, Harford, Howard, Montgomery, Northern Baltimore, Prince George's, Southern Baltimore, Washington	12/5/07	Snow amounts ranged from 1 to 3 inches (25 to 76 mm) across lower southern Maryland north into the Washington and southern Baltimore suburbs, and up to 7 inches (178 mm) in far western Allegany County. 3 to 6 inches (76 to 152 mm) of snow across Anne Arundel County. The observer at Baltimore-Washington International Airport (BWI) measured 4.7 inches (119 mm) of snow.
Anne Arundel, Calvert, Carroll, Charles, Frederick, Harford, Howard, Montgomery, Northern Baltimore, Prince George's, Southern Baltimore, Washington	01/17/08	3 to 4 inches (76 to 102 mm) of snow in western Allegany County. Significant accumulations of snow and sleet were reported with only a trace of ice.

Table 2.3-7 — {Snow Storm Events within the General Region of the Site}
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Locations/Counties	Date	Snow Amount
Caroline, Queen Anne's, Talbot	1/24/08	Accumulations averaged 1 to 2 inches (25 to 51 mm). Specific accumulations included 2.5 inches (64 mm) in Henderson (Caroline County), 1.5 inches (38 mm) in Marydel (Caroline County), 1.4 inches (36 mm) in Trappe (Talbot County), 1.3 inches (33 mm) in Ridgely and Denton (Caroline County), 1.0 inch (25 mm) on the southern part of Kent Island (Queen Anne's County) and 0.5 inches (13 mm) in Saint Michaels (Talbot County).
Dorchester, Wicomico	1/24/08	0.5 to 1 inch (13 to 25 mm) of snow occurred in a few areas. Cambridge and East New Market reported 1.0 inch (25 mm) of snow.
Anne Arundel, Carroll, Frederick, Harford, Howard, Montgomery, Northern Baltimore, Prince George's, Southern Baltimore, Washington	2/12/08	Up to 5 inches (127 mm) of snow. Mostly ice was reported further east into the Baltimore Metro and northern Washington DC suburbs.
Dorchester, Inland Worcester	2/14/08	0.5 to 2.5 inches (13 to 64 mm) of snow over portions of the Lower Maryland Eastern Shore. Church Creek reported 2.0 inches (51 mm) of snowfall.
Anne Arundel	2/14/08	1 to 2 inches (25 to 51 mm) of snow in St. Mary's County.
Caroline, Talbot	2/14/08	Snow accumulations were less than 1 inch (25 mm) and ice accretions were minimal.
Anne Arundel, Calvert, Carroll, Charles, Frederick, Harford, Northern Baltimore, Prince George's, Southern Baltimore, Washington	02/20/08	Snow amounts ranged from 3 to 5 inches (76 to 127 mm) along and west of the Allegheny Front to 1 to 2 inches (25 to 51 mm) further east across the Baltimore Metro and south across lower southern Maryland.
Anne Arundel, Calvert, Carroll, Charles, Frederick, Harford, Northern Baltimore, Prince George's, Southern Baltimore, Washington	02/22/08	1 to 2 inches (25 to 51 mm) across the Baltimore Metro and south across lower southern Maryland.
Dorchester, Inland Worcester, Maryland Beaches, Somerset, Wicomico	01/27/09	0.5 to 1 inch (13 to 25 mm) occurred across portions of the county. Cambridge reported 1.0 inch (25 mm). Light snow between 0.5 to 1.5 inches (13 to 38 mm) occurred across portions of the Lower Maryland Eastern Shore.
Charles, St. Mary's	01/27/09	Ice accumulation around one tenth of an inch (3 mm). Snow and sleet accumulation around 2 inches (51 mm) was reported throughout the county.
Dorchester	03/01/09	Snowfall amounts were generally between 4 to 11 inches (102 to 279 mm) across the county. Church Creek reported 11.0 inches (279 mm) of snow. Cambridge reported 6.0 inches (152 mm) of snow.
Calvert, St. Mary's Carroll, Charles, Frederick, Harford, Howard, Montgomery, Northern Baltimore, Southern Baltimore	03/01/09	Snowfall totaled up to 13.0 inches (330 mm) in Port Republic. Snowfall amounts averaged between 6 and 10 inches (152 to 254 mm) across the rest of St. Mary's the county. Snowfall reports throughout northern Baltimore County averaged 5 to 7 inches (127 to 178 mm). Snowfall totals averaged around 2 to 5 inches (51 to 127 mm) across Charles county.

Table 2.3-8 — {Probable Maximum Winter Precipitation (PMWP) Values}

Duration (hours)	Jan-Feb PMP Depth (inches)	Dec PMP Depth (inches)
6	10.5	12.25
24	16.5	18.5
72	20.5	23.5

Table 2.3-9 — {Design Basis Tornado Characteristics for CCNPP Unit 3}

Region	Maximum Wind Speed m/s (mph)	Translational Speed m/s (mph)	Maximum Rotational Speed m/s (mph)	Radius of Maximum Rotational Speed m (ft)	Pressure Drop mb (psi)	Rate of Pressure Drop mb/s (psi/s)
II	89 (200)	18 (40)	72 (160)	45.7 (150)	63 (0.9)	25 (0.4)

Table 2.3-10 — {CCNPP 33 ft (10 m) Annual JFD}

(Page 1 of 8)

CC JAN00-DEC05 MET DATA JOINT FREQUENCY DISTRIBUTION (60-METER TOWER)

33.0 FT WIND DATA STABILITY CLASS A CLASS FREQUENCY (PERCENT) = 11.73

WIND DIRECTION FROM

SPEED mps	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VRBL	TOTAL
LT .2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.2- .4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.5- 1.0	0	0	0	0	2	0	0	1	0	1	0	0	0	1	0	0	0	5
(1)	.00	.00	.00	.00	.03	.00	.00	.02	.00	.02	.00	.00	.00	.02	.00	.00	.00	.08
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01
1.1- 1.5	3	3	4	6	3	0	4	1	3	11	9	6	6	4	0	1	0	64
(1)	.05	.05	.07	.10	.05	.00	.07	.02	.05	.18	.15	.10	.10	.07	.00	.02	.00	1.06
(2)	.01	.01	.01	.01	.01	.00	.01	.00	.01	.02	.02	.01	.01	.01	.00	.00	.00	.12
1.6- 2.0	10	29	19	21	12	12	7	12	11	33	49	24	13	5	5	6	0	268
(1)	.17	.48	.31	.35	.20	.20	.12	.20	.18	.55	.81	.40	.22	.08	.08	.10	.00	4.43
(2)	.02	.06	.04	.04	.02	.02	.01	.02	.02	.06	.10	.05	.03	.01	.01	.01	.00	.52
2.1- 3.0	131	171	115	70	80	62	72	79	75	172	272	171	59	37	28	19	0	1613
(1)	2.17	2.83	1.90	1.16	1.32	1.03	1.19	1.31	1.24	2.85	4.50	2.83	.98	.61	.46	.31	.00	26.68
(2)	.25	.33	.22	.14	.16	.12	.14	.15	.15	.33	.53	.33	.11	.07	.05	.04	.00	3.13
3.1- 4.0	285	253	112	20	31	37	104	154	65	137	300	197	93	82	76	56	0	2002
(1)	4.71	4.19	1.85	.33	.51	.61	1.72	2.55	1.08	2.27	4.96	3.26	1.54	1.36	1.26	.93	.00	33.12
(2)	.55	.49	.22	.04	.06	.07	.20	.30	.13	.27	.58	.38	.18	.16	.15	.11	.00	3.89
4.1- 5.0	169	86	44	8	4	10	49	107	31	82	167	70	67	106	130	47	0	1177
(1)	2.80	1.42	.73	.13	.07	.17	.81	1.77	.51	1.36	2.76	1.16	1.11	1.75	2.15	.78	.00	19.47
(2)	.33	.17	.09	.02	.01	.02	.10	.21	.06	.16	.32	.14	.13	.21	.25	.09	.00	2.28
5.1- 6.0	65	23	27	1	0	1	11	53	5	30	65	25	33	105	116	30	0	590
(1)	1.08	.38	.45	.02	.00	.02	.18	.88	.08	.50	1.08	.41	.55	1.74	1.92	.50	.00	9.76
(2)	.13	.04	.05	.00	.00	.00	.02	.10	.01	.06	.13	.05	.06	.20	.23	.06	.00	1.15
6.1- 8.0	16	1	15	3	0	0	0	25	1	9	16	10	16	72	101	16	0	301
(1)	.26	.02	.25	.05	.00	.00	.00	.41	.02	.15	.26	.17	.26	1.19	1.67	.26	.00	4.98
(2)	.03	.00	.03	.01	.00	.00	.00	.05	.00	.02	.03	.02	.03	.14	.20	.03	.00	.58
8.1-10.0	0	0	0	0	0	0	0	0	0	2	0	0	1	12	8	0	0	23
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.03	.00	.00	.02	.20	.13	.00	.00	.38
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.02	.02	.00	.00	.04
10.1-89.5	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	2
(1)	.00	.00	.02	.00	.00	.00	.00	.00	.00	.00	.00	.00	.02	.00	.00	.00	.00	.03
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
ALL SPEEDS	679	566	337	129	132	122	247	432	191	477	878	503	289	424	464	175	0	6045
(1)	11.23	9.36	5.57	2.13	2.18	2.02	4.09	7.15	3.16	7.89	14.52	8.32	4.78	7.01	7.68	2.89	.00	100.00
(2)	1.32	1.10	.65	.25	.26	.24	.48	.84	.37	.93	1.70	.98	.56	.82	.90	.34	.00	11.73

(1)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PAGE

(2)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PERIOD

Table 2.3-10 — {CCNPP 33 ft (10 m) Annual JFD}

(Page 2 of 8)

CC JAN00-DEC05 MET DATA JOINT FREQUENCY DISTRIBUTION (60-METER TOWER)

33.0 FT WIND DATA STABILITY CLASS B CLASS FREQUENCY (PERCENT) = 4.58

WIND DIRECTION FROM

SPEED mps	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VRBL	TOTAL
LT .2	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.04	.00	.00	.00	.00	.00	.04
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.2- .4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.5- 1.0	1	0	1	0	1	0	1	0	1	0	0	0	0	0	0	1	0	6
(1)	.04	.00	.04	.00	.04	.00	.04	.00	.04	.00	.00	.00	.00	.00	.00	.04	.00	.25
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01
1.1- 1.5	3	4	3	2	8	1	4	2	3	4	7	3	4	3	0	0	0	51
(1)	.13	.17	.13	.08	.34	.04	.17	.08	.13	.17	.30	.13	.17	.13	.00	.00	.00	2.16
(2)	.01	.01	.01	.00	.02	.00	.01	.00	.01	.01	.01	.01	.01	.01	.00	.00	.00	.10
1.6- 2.0	11	11	25	21	13	18	11	3	11	10	20	19	10	5	4	5	0	197
(1)	.47	.47	1.06	.89	.55	.76	.47	.13	.47	.42	.85	.81	.42	.21	.17	.21	.00	8.35
(2)	.02	.02	.05	.04	.03	.03	.02	.01	.02	.02	.04	.04	.02	.01	.01	.01	.00	.38
2.1- 3.0	87	122	64	64	45	33	44	41	36	42	61	67	42	28	16	13	0	805
(1)	3.69	5.17	2.71	2.71	1.91	1.40	1.87	1.74	1.53	1.78	2.59	2.84	1.78	1.19	.68	.55	.00	34.14
(2)	.17	.24	.12	.12	.09	.06	.09	.08	.07	.08	.12	.13	.08	.05	.03	.03	.00	1.56
3.1- 4.0	94	76	43	12	8	12	45	80	14	34	69	50	27	28	30	17	0	639
(1)	3.99	3.22	1.82	.51	.34	.51	1.91	3.39	.59	1.44	2.93	2.12	1.15	1.19	1.27	.72	.00	27.10
(2)	.18	.15	.08	.02	.02	.02	.09	.16	.03	.07	.13	.10	.05	.05	.06	.03	.00	1.24
4.1- 5.0	47	16	28	3	1	3	11	31	9	19	35	22	19	23	43	25	0	335
(1)	1.99	.68	1.19	.13	.04	.13	.47	1.31	.38	.81	1.48	.93	.81	.98	1.82	1.06	.00	14.21
(2)	.09	.03	.05	.01	.00	.01	.02	.06	.02	.04	.07	.04	.04	.04	.08	.05	.00	.65
5.1- 6.0	38	8	15	4	0	1	4	18	3	5	15	1	11	21	40	14	0	198
(1)	1.61	.34	.64	.17	.00	.04	.17	.76	.13	.21	.64	.04	.47	.89	1.70	.59	.00	8.40
(2)	.07	.02	.03	.01	.00	.00	.01	.03	.01	.01	.03	.00	.02	.04	.08	.03	.00	.38
6.1- 8.0	9	2	4	4	0	0	1	9	1	4	3	3	3	32	32	9	0	116
(1)	.38	.08	.17	.17	.00	.00	.04	.38	.04	.17	.13	.13	.13	1.36	1.36	.38	.00	4.92
(2)	.02	.00	.01	.01	.00	.00	.00	.02	.00	.01	.01	.01	.01	.06	.06	.02	.00	.23
8.1-10.0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	7	0	0	9
(1)	.04	.00	.00	.00	.00	.00	.00	.04	.00	.00	.00	.00	.00	.00	.30	.00	.00	.38
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	.00	.00	.02
10.1-89.5	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
(1)	.04	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.04
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
ALL SPEEDS	292	239	183	110	76	68	121	185	78	118	210	166	116	140	172	84	0	2358
(1)	12.38	10.14	7.76	4.66	3.22	2.88	5.13	7.85	3.31	5.00	8.91	7.04	4.92	5.94	7.29	3.56	.00	100.00
(2)	.57	.46	.36	.21	.15	.13	.23	.36	.15	.23	.41	.32	.23	.27	.33	.16	.00	4.58

(1)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PAGE

(2)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PERIOD

Table 2.3-10 — {CCNPP 33 ft (10 m) Annual JFD}

(Page 3 of 8)

CC JAN00-DEC05 MET DATA JOINT FREQUENCY DISTRIBUTION (60-METER TOWER)

33.0 FT WIND DATA STABILITY CLASS C CLASS FREQUENCY (PERCENT) = 5.03

WIND DIRECTION FROM

SPEED mps	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VRBL	TOTAL
LT .2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.2- .4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.5- 1.0	1	0	1	0	2	0	2	1	2	0	2	2	3	1	1	1	0	19
(1)	.04	.00	.04	.00	.08	.00	.08	.04	.08	.00	.08	.08	.12	.04	.04	.04	.00	.73
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	.00	.00	.00	.00	.04
1.1- 1.5	5	13	8	10	11	7	6	5	2	8	11	7	8	6	1	4	0	112
(1)	.19	.50	.31	.39	.42	.27	.23	.19	.08	.31	.42	.27	.31	.23	.04	.15	.00	4.32
(2)	.01	.03	.02	.02	.02	.01	.01	.01	.00	.02	.02	.01	.02	.01	.00	.01	.00	.22
1.6- 2.0	18	37	23	29	37	20	17	15	11	10	26	20	12	6	7	4	0	292
(1)	.69	1.43	.89	1.12	1.43	.77	.66	.58	.42	.39	1.00	.77	.46	.23	.27	.15	.00	11.27
(2)	.03	.07	.04	.06	.07	.04	.03	.03	.02	.02	.05	.04	.02	.01	.01	.01	.00	.57
2.1- 3.0	107	142	92	67	50	40	45	60	30	50	86	66	34	34	31	20	0	954
(1)	4.13	5.48	3.55	2.59	1.93	1.54	1.74	2.32	1.16	1.93	3.32	2.55	1.31	1.31	1.20	.77	.00	36.83
(2)	.21	.28	.18	.13	.10	.08	.09	.12	.06	.10	.17	.13	.07	.07	.06	.04	.00	1.85
3.1- 4.0	100	58	64	16	8	8	12	88	23	25	58	47	38	26	40	23	0	634
(1)	3.86	2.24	2.47	.62	.31	.31	.46	3.40	.89	.97	2.24	1.81	1.47	1.00	1.54	.89	.00	24.48
(2)	.19	.11	.12	.03	.02	.02	.02	.17	.04	.05	.11	.09	.07	.05	.08	.04	.00	1.23
4.1- 5.0	46	20	27	7	3	2	7	38	6	14	29	20	13	26	35	22	0	315
(1)	1.78	.77	1.04	.27	.12	.08	.27	1.47	.23	.54	1.12	.77	.50	1.00	1.35	.85	.00	12.16
(2)	.09	.04	.05	.01	.01	.00	.01	.07	.01	.03	.06	.04	.03	.05	.07	.04	.00	.61
5.1- 6.0	14	9	16	7	0	0	2	10	2	2	17	4	6	20	23	10	0	142
(1)	.54	.35	.62	.27	.00	.00	.08	.39	.08	.08	.66	.15	.23	.77	.89	.39	.00	5.48
(2)	.03	.02	.03	.01	.00	.00	.00	.02	.00	.00	.03	.01	.01	.04	.04	.02	.00	.28
6.1- 8.0	16	4	6	5	0	0	0	5	0	2	3	0	5	24	34	7	0	111
(1)	.62	.15	.23	.19	.00	.00	.00	.19	.00	.08	.12	.00	.19	.93	1.31	.27	.00	4.29
(2)	.03	.01	.01	.01	.00	.00	.00	.01	.00	.00	.01	.00	.01	.05	.07	.01	.00	.22
8.1-10.0	2	0	2	0	0	0	0	0	0	0	0	0	0	3	3	1	0	11
(1)	.08	.00	.08	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.12	.12	.04	.00	.42
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	.01	.00	.00	.02
10.1-89.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
ALL SPEEDS	309	283	239	141	111	77	91	222	76	111	232	166	119	146	175	92	0	2590
(1)	11.93	10.93	9.23	5.44	4.29	2.97	3.51	8.57	2.93	4.29	8.96	6.41	4.59	5.64	6.76	3.55	.00	100.00
(2)	.60	.55	.46	.27	.22	.15	.18	.43	.15	.22	.45	.32	.23	.28	.34	.18	.00	5.03

(1)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PAGE

(2)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PERIOD

Table 2.3-10 — {CCNPP 33 ft (10 m) Annual JFD}

(Page 4 of 8)

CC JAN00-DEC05 MET DATA JOINT FREQUENCY DISTRIBUTION (60-METER TOWER)

33.0 FT WIND DATA STABILITY CLASS D CLASS FREQUENCY (PERCENT) = 34.33

WIND DIRECTION FROM

SPEED mps	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VRBL	TOTAL
LT .2	0	0	0	0	0	0	0	0	0	2	3	0	0	1	2	1	0	9
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	.02	.00	.00	.01	.01	.01	.00	.05
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	.00	.00	.00	.00	.00	.00	.02
.2- .4	1	0	0	0	0	0	1	0	1	2	1	2	4	4	0	1	0	17
(1)	.01	.00	.00	.00	.00	.00	.01	.00	.01	.01	.01	.01	.02	.02	.00	.01	.00	.10
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	.01	.00	.00	.00	.03
.5- 1.0	30	35	39	20	38	44	31	31	33	48	55	33	25	35	22	35	0	554
(1)	.17	.20	.22	.11	.21	.25	.18	.18	.19	.27	.31	.19	.14	.20	.12	.20	.00	3.13
(2)	.06	.07	.08	.04	.07	.09	.06	.06	.06	.09	.11	.06	.05	.07	.04	.07	.00	1.08
1.1- 1.5	74	81	76	86	141	90	72	75	66	76	95	57	54	40	43	43	0	1169
(1)	.42	.46	.43	.49	.80	.51	.41	.42	.37	.43	.54	.32	.31	.23	.24	.24	.00	6.61
(2)	.14	.16	.15	.17	.27	.17	.14	.15	.13	.15	.18	.11	.10	.08	.08	.08	.00	2.27
1.6- 2.0	153	215	152	198	209	145	126	120	126	119	126	93	70	50	80	69	0	2051
(1)	.86	1.22	.86	1.12	1.18	.82	.71	.68	.71	.67	.71	.53	.40	.28	.45	.39	.00	11.60
(2)	.30	.42	.30	.38	.41	.28	.24	.23	.24	.23	.24	.18	.14	.10	.16	.13	.00	3.98
2.1- 3.0	418	501	394	506	390	241	265	404	249	194	311	230	149	146	257	263	0	4918
(1)	2.36	2.83	2.23	2.86	2.20	1.36	1.50	2.28	1.41	1.10	1.76	1.30	.84	.83	1.45	1.49	.00	27.80
(2)	.81	.97	.76	.98	.76	.47	.51	.78	.48	.38	.60	.45	.29	.28	.50	.51	.00	9.54
3.1- 4.0	403	316	427	398	166	99	127	354	163	139	247	166	94	110	320	391	0	3920
(1)	2.28	1.79	2.41	2.25	.94	.56	.72	2.00	.92	.79	1.40	.94	.53	.62	1.81	2.21	.00	22.16
(2)	.78	.61	.83	.77	.32	.19	.25	.69	.32	.27	.48	.32	.18	.21	.62	.76	.00	7.61
4.1- 5.0	340	264	359	226	45	16	45	187	71	62	164	60	57	123	287	287	0	2593
(1)	1.92	1.49	2.03	1.28	.25	.09	.25	1.06	.40	.35	.93	.34	.32	.70	1.62	1.62	.00	14.66
(2)	.66	.51	.70	.44	.09	.03	.09	.36	.14	.12	.32	.12	.11	.24	.56	.56	.00	5.03
5.1- 6.0	244	172	237	110	1	4	13	94	22	25	66	18	25	103	218	112	0	1464
(1)	1.38	.97	1.34	.62	.01	.02	.07	.53	.12	.14	.37	.10	.14	.58	1.23	.63	.00	8.28
(2)	.47	.33	.46	.21	.00	.01	.03	.18	.04	.05	.13	.03	.05	.20	.42	.22	.00	2.84
6.1- 8.0	167	78	174	50	3	2	5	52	16	17	13	8	13	103	133	36	0	870
(1)	.94	.44	.98	.28	.02	.01	.03	.29	.09	.10	.07	.05	.07	.58	.75	.20	.00	4.92
(2)	.32	.15	.34	.10	.01	.00	.01	.10	.03	.03	.03	.02	.03	.20	.26	.07	.00	1.69
8.1-10.0	23	6	25	8	1	0	2	2	1	0	1	0	4	21	13	2	0	109
(1)	.13	.03	.14	.05	.01	.00	.01	.01	.01	.00	.01	.00	.02	.12	.07	.01	.00	.62
(2)	.04	.01	.05	.02	.00	.00	.00	.00	.00	.00	.00	.00	.01	.04	.03	.00	.00	.21
10.1-89.5	4	2	2	1	1	0	1	1	0	0	0	0	0	1	1	0	0	14
(1)	.02	.01	.01	.01	.01	.00	.01	.01	.00	.00	.00	.00	.00	.01	.01	.00	.00	.08
(2)	.01	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.03
ALL SPEEDS	1857	1670	1885	1603	995	641	688	1320	748	684	1082	667	495	737	1376	1240	0	17688
(1)	10.50	9.44	10.66	9.06	5.63	3.62	3.89	7.46	4.23	3.87	6.12	3.77	2.80	4.17	7.78	7.01	.00	100.00
(2)	3.60	3.24	3.66	3.11	1.93	1.24	1.34	2.56	1.45	1.33	2.10	1.29	.96	1.43	2.67	2.41	.00	34.33

(1)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PAGE

(2)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PERIOD

Table 2.3-10 — {CCNPP 33 ft (10 m) Annual JFD}

(Page 5 of 8)

CC JAN00-DEC05 MET DATA JOINT FREQUENCY DISTRIBUTION (60-METER TOWER)

33.0 FT WIND DATA STABILITY CLASS E CLASS FREQUENCY (PERCENT) = 26.80

WIND DIRECTION FROM

SPEED mps	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VRBL	TOTAL
LT .2	3	3	0	0	1	1	4	6	7	3	11	7	3	1	2	1	0	53
(1)	.02	.02	.00	.00	.01	.01	.03	.04	.05	.02	.08	.05	.02	.01	.01	.01	.00	.38
(2)	.01	.01	.00	.00	.00	.00	.01	.01	.01	.01	.02	.01	.01	.00	.00	.00	.00	.10
.2- .4	3	2	5	2	2	6	8	8	14	18	10	13	14	6	8	1	0	120
(1)	.02	.01	.04	.01	.01	.04	.06	.06	.10	.13	.07	.09	.10	.04	.06	.01	.00	.87
(2)	.01	.00	.01	.00	.00	.01	.02	.02	.03	.03	.02	.03	.03	.01	.02	.00	.00	.23
.5- 1.0	48	37	29	32	54	53	63	76	108	114	121	90	62	46	55	55	0	1043
(1)	.35	.27	.21	.23	.39	.38	.46	.55	.78	.83	.88	.65	.45	.33	.40	.40	.00	7.55
(2)	.09	.07	.06	.06	.10	.10	.12	.15	.21	.22	.23	.17	.12	.09	.11	.11	.00	2.02
1.1- 1.5	92	85	66	58	61	70	87	121	202	265	245	136	116	103	130	67	0	1904
(1)	.67	.62	.48	.42	.44	.51	.63	.88	1.46	1.92	1.77	.98	.84	.75	.94	.49	.00	13.79
(2)	.18	.16	.13	.11	.12	.14	.17	.23	.39	.51	.48	.26	.23	.20	.25	.13	.00	3.70
1.6- 2.0	109	115	49	60	83	61	96	151	253	262	264	178	158	179	196	154	0	2368
(1)	.79	.83	.35	.43	.60	.44	.70	1.09	1.83	1.90	1.91	1.29	1.14	1.30	1.42	1.12	.00	17.15
(2)	.21	.22	.10	.12	.16	.12	.19	.29	.49	.51	.51	.35	.31	.35	.38	.30	.00	4.60
2.1- 3.0	210	182	116	85	77	59	72	216	480	505	703	321	214	282	540	303	0	4365
(1)	1.52	1.32	.84	.62	.56	.43	.52	1.56	3.48	3.66	5.09	2.32	1.55	2.04	3.91	2.19	.00	31.61
(2)	.41	.35	.23	.16	.15	.11	.14	.42	.93	.98	1.36	.62	.42	.55	1.05	.59	.00	8.47
3.1- 4.0	146	81	76	29	10	11	20	125	198	296	658	149	104	143	315	182	0	2543
(1)	1.06	.59	.55	.21	.07	.08	.14	.91	1.43	2.14	4.77	1.08	.75	1.04	2.28	1.32	.00	18.42
(2)	.28	.16	.15	.06	.02	.02	.04	.24	.38	.57	1.28	.29	.20	.28	.61	.35	.00	4.94
4.1- 5.0	70	31	25	4	8	4	4	57	64	133	264	40	39	96	95	54	0	988
(1)	.51	.22	.18	.03	.06	.03	.03	.41	.46	.96	1.91	.29	.28	.70	.69	.39	.00	7.16
(2)	.14	.06	.05	.01	.02	.01	.01	.11	.12	.26	.51	.08	.08	.19	.18	.10	.00	1.92
5.1- 6.0	31	13	6	0	2	1	4	17	20	35	80	9	17	31	30	14	0	310
(1)	.22	.09	.04	.00	.01	.01	.03	.12	.14	.25	.58	.07	.12	.22	.22	.10	.00	2.25
(2)	.06	.03	.01	.00	.00	.00	.01	.03	.04	.07	.16	.02	.03	.06	.06	.03	.00	.60
6.1- 8.0	7	0	2	2	0	1	4	16	6	9	14	2	4	18	9	0	0	94
(1)	.05	.00	.01	.01	.00	.01	.03	.12	.04	.07	.10	.01	.03	.13	.07	.00	.00	.68
(2)	.01	.00	.00	.00	.00	.00	.01	.03	.01	.02	.03	.00	.01	.03	.02	.00	.00	.18
8.1-10.0	1	1	0	0	0	0	1	3	0	0	0	1	0	4	1	0	0	12
(1)	.01	.01	.00	.00	.00	.00	.01	.02	.00	.00	.00	.01	.00	.03	.01	.00	.00	.09
(2)	.00	.00	.00	.00	.00	.00	.00	.01	.00	.00	.00	.00	.00	.01	.00	.00	.00	.02
10.1-89.5	0	0	1	2	0	2	2	0	0	0	0	0	0	1	0	0	0	8
(1)	.00	.00	.01	.01	.00	.01	.01	.00	.00	.00	.00	.00	.00	.01	.00	.00	.00	.06
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.02
ALL SPEEDS	720	550	375	274	298	269	365	796	1352	1640	2370	946	731	910	1381	831	0	13808
(1)	5.21	3.98	2.72	1.98	2.16	1.95	2.64	5.76	9.79	11.88	17.16	6.85	5.29	6.59	10.00	6.02	.00	100.00
(2)	1.40	1.07	.73	.53	.58	.52	.71	1.54	2.62	3.18	4.60	1.84	1.42	1.77	2.68	1.61	.00	26.80

(1)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PAGE

(2)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PERIOD

Table 2.3-10 — {CCNPP 33 ft (10 m) Annual JFD}

(Page 6 of 8)

CC JAN00-DEC05 MET DATA JOINT FREQUENCY DISTRIBUTION (60-METER TOWER)

33.0 FT WIND DATA STABILITY CLASS F CLASS FREQUENCY (PERCENT) = 10.37

WIND DIRECTION FROM

SPEED	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VRBL	TOTAL
mps																		
LT .2	0	3	2	2	2	1	3	1	6	8	9	8	3	4	4	0	0	56
(1)	.00	.06	.04	.04	.04	.02	.06	.02	.11	.15	.17	.15	.06	.07	.07	.00	.00	1.05
(2)	.00	.01	.00	.00	.00	.00	.01	.00	.01	.02	.02	.02	.01	.01	.01	.00	.00	.11
.2- .4	0	2	6	1	9	7	7	11	8	15	9	5	7	6	1	5	0	99
(1)	.00	.04	.11	.02	.17	.13	.13	.21	.15	.28	.17	.09	.13	.11	.02	.09	.00	1.85
(2)	.00	.00	.01	.00	.02	.01	.01	.02	.02	.03	.02	.01	.01	.01	.00	.01	.00	.19
.5- 1.0	26	25	34	22	16	34	24	40	86	133	150	95	71	61	24	27	0	868
(1)	.49	.47	.64	.41	.30	.64	.45	.75	1.61	2.49	2.81	1.78	1.33	1.14	.45	.51	.00	16.24
(2)	.05	.05	.07	.04	.03	.07	.05	.08	.17	.26	.29	.18	.14	.12	.05	.05	.00	1.68
1.1- 1.5	19	22	19	13	12	16	21	62	177	304	283	155	92	109	62	22	0	1388
(1)	.36	.41	.36	.24	.22	.30	.39	1.16	3.31	5.69	5.30	2.90	1.72	2.04	1.16	.41	.00	25.97
(2)	.04	.04	.04	.03	.02	.03	.04	.12	.34	.59	.55	.30	.18	.21	.12	.04	.00	2.69
1.6- 2.0	18	21	11	12	6	6	21	71	153	282	308	164	118	131	95	22	0	1439
(1)	.34	.39	.21	.22	.11	.11	.39	1.33	2.86	5.28	5.76	3.07	2.21	2.45	1.78	.41	.00	26.93
(2)	.03	.04	.02	.02	.01	.01	.04	.14	.30	.55	.60	.32	.23	.25	.18	.04	.00	2.79
2.1- 3.0	18	29	11	8	4	1	14	32	92	186	397	165	86	106	118	10	0	1277
(1)	.34	.54	.21	.15	.07	.02	.26	.60	1.72	3.48	7.43	3.09	1.61	1.98	2.21	.19	.00	23.90
(2)	.03	.06	.02	.02	.01	.00	.03	.06	.18	.36	.77	.32	.17	.21	.23	.02	.00	2.48
3.1- 4.0	2	6	2	2	0	0	0	1	11	25	71	15	6	5	11	0	0	157
(1)	.04	.11	.04	.04	.00	.00	.00	.02	.21	.47	1.33	.28	.11	.09	.21	.00	.00	2.94
(2)	.00	.01	.00	.00	.00	.00	.00	.00	.02	.05	.14	.03	.01	.01	.02	.00	.00	.30
4.1- 5.0	3	4	3	8	2	0	0	0	1	1	11	0	1	0	2	0	0	36
(1)	.06	.07	.06	.15	.04	.00	.00	.00	.02	.02	.21	.00	.02	.00	.04	.00	.00	.67
(2)	.01	.01	.01	.02	.00	.00	.00	.00	.00	.00	.02	.00	.00	.00	.00	.00	.00	.07
5.1- 6.0	5	1	2	6	2	0	0	0	0	0	2	0	1	0	0	2	0	21
(1)	.09	.02	.04	.11	.04	.00	.00	.00	.00	.00	.04	.00	.02	.00	.00	.04	.00	.39
(2)	.01	.00	.00	.01	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.04
6.1- 8.0	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
(1)	.02	.00	.04	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.06
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01
8.1-10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
10.1-89.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
ALL SPEEDS	92	113	92	74	53	65	90	218	534	954	1240	607	385	422	317	88	0	5344
(1)	1.72	2.11	1.72	1.38	.99	1.22	1.68	4.08	9.99	17.85	23.20	11.36	7.20	7.90	5.93	1.65	.00	100.00
(2)	.18	.22	.18	.14	.10	.13	.17	.42	1.04	1.85	2.41	1.18	.75	.82	.62	.17	.00	10.37

(1)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PAGE

(2)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PERIOD

Table 2.3-10 — {CCNPP 33 ft (10 m) Annual JFD}

(Page 7 of 8)

CC JAN00-DEC05 MET DATA JOINT FREQUENCY DISTRIBUTION (60-METER TOWER)

33.0 FT WIND DATA STABILITY CLASS G CLASS FREQUENCY (PERCENT) = 7.17

WIND DIRECTION FROM

SPEED mps	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VRBL	TOTAL
LT .2	0	1	0	2	2	1	1	3	8	5	9	14	3	0	2	2	0	53
(1)	.00	.03	.00	.05	.05	.03	.03	.08	.22	.14	.24	.38	.08	.00	.05	.05	.00	1.44
(2)	.00	.00	.00	.00	.00	.00	.00	.01	.02	.01	.02	.03	.01	.00	.00	.00	.00	.10
.2- .4	0	0	1	2	1	6	3	6	13	16	15	16	15	5	5	2	0	106
(1)	.00	.00	.03	.05	.03	.16	.08	.16	.35	.43	.41	.43	.41	.14	.14	.05	.00	2.87
(2)	.00	.00	.00	.00	.00	.01	.01	.01	.03	.03	.03	.03	.03	.01	.01	.00	.00	.21
.5- 1.0	9	4	8	9	5	8	6	23	46	89	146	160	124	92	18	10	0	757
(1)	.24	.11	.22	.24	.14	.22	.16	.62	1.25	2.41	3.95	4.33	3.36	2.49	.49	.27	.00	20.50
(2)	.02	.01	.02	.02	.01	.02	.01	.04	.09	.17	.28	.31	.24	.18	.03	.02	.00	1.47
1.1- 1.5	5	6	6	7	2	6	7	18	93	307	381	227	137	96	13	3	0	1314
(1)	.14	.16	.16	.19	.05	.16	.19	.49	2.52	8.32	10.32	6.15	3.71	2.60	.35	.08	.00	35.59
(2)	.01	.01	.01	.01	.00	.01	.01	.03	.18	.60	.74	.44	.27	.19	.03	.01	.00	2.55
1.6- 2.0	1	5	2	8	0	7	4	19	64	234	334	116	94	99	23	5	0	1015
(1)	.03	.14	.05	.22	.00	.19	.11	.51	1.73	6.34	9.05	3.14	2.55	2.68	.62	.14	.00	27.49
(2)	.00	.01	.00	.02	.00	.01	.01	.04	.12	.45	.65	.23	.18	.19	.04	.01	.00	1.97
2.1- 3.0	1	4	3	0	0	2	2	4	18	56	139	64	40	43	18	2	0	396
(1)	.03	.11	.08	.00	.00	.05	.05	.11	.49	1.52	3.76	1.73	1.08	1.16	.49	.05	.00	10.73
(2)	.00	.01	.01	.00	.00	.00	.00	.01	.03	.11	.27	.12	.08	.08	.03	.00	.00	.77
3.1- 4.0	0	1	0	0	0	0	0	1	0	3	3	1	3	0	2	0	0	14
(1)	.00	.03	.00	.00	.00	.00	.00	.03	.00	.08	.08	.03	.08	.00	.05	.00	.00	.38
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	.01	.00	.01	.00	.00	.00	.00	.03
4.1- 5.0	0	1	2	5	1	0	0	0	0	0	1	0	0	1	5	0	0	16
(1)	.00	.03	.05	.14	.03	.00	.00	.00	.00	.00	.03	.00	.00	.03	.14	.00	.00	.43
(2)	.00	.00	.00	.01	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	.00	.00	.03
5.1- 6.0	0	0	3	2	0	0	0	0	0	0	0	0	0	1	1	0	0	7
(1)	.00	.00	.08	.05	.00	.00	.00	.00	.00	.00	.00	.00	.00	.03	.03	.00	.00	.19
(2)	.00	.00	.01	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01
6.1- 8.0	0	0	8	1	0	0	0	0	0	0	0	0	0	0	0	0	0	9
(1)	.00	.00	.22	.03	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.24
(2)	.00	.00	.02	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.02
8.1-10.0	0	0	3	2	0	0	0	0	0	0	0	0	0	0	0	0	0	5
(1)	.00	.00	.08	.05	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.14
(2)	.00	.00	.01	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01
10.1-89.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
ALL SPEEDS	16	22	36	38	11	30	23	74	242	710	1028	598	416	337	87	24	0	3692
(1)	.43	.60	.98	1.03	.30	.81	.62	2.00	6.55	19.23	27.84	16.20	11.27	9.13	2.36	.65	.00	100.00
(2)	.03	.04	.07	.07	.02	.06	.04	.14	.47	1.38	2.00	1.16	.81	.65	.17	.05	.00	7.17

(1)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PAGE
(2)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PERIOD

Table 2.3-10 — {CCNPP 33 ft (10 m) Annual JFD}

(Page 8 of 8)

CC JAN00-DEC05 MET DATA JOINT FREQUENCY DISTRIBUTION (60-METER TOWER)

33.0 FT WIND DATA STABILITY CLASS ALL CLASS FREQUENCY (PERCENT) = 100.00

WIND DIRECTION FROM

SPEED mps	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VRBL	TOTAL
LT .2	3	7	2	4	5	3	8	10	21	18	32	30	9	6	10	4	0	172
(1)	.01	.01	.00	.01	.01	.01	.02	.02	.04	.03	.06	.06	.02	.01	.02	.01	.00	.33
(2)	.01	.01	.00	.01	.01	.01	.02	.02	.04	.03	.06	.06	.02	.01	.02	.01	.00	.33
.2- .4	4	4	12	5	12	19	19	25	36	51	35	36	40	21	14	9	0	342
(1)	.01	.01	.02	.01	.02	.04	.04	.05	.07	.10	.07	.07	.08	.04	.03	.02	.00	.66
(2)	.01	.01	.02	.01	.02	.04	.04	.05	.07	.10	.07	.07	.08	.04	.03	.02	.00	.66
.5- 1.0	115	101	112	83	118	139	127	172	276	385	474	380	285	236	120	129	0	3252
(1)	.22	.20	.22	.16	.23	.27	.25	.33	.54	.75	.92	.74	.55	.46	.23	.25	.00	6.31
(2)	.22	.20	.22	.16	.23	.27	.25	.33	.54	.75	.92	.74	.55	.46	.23	.25	.00	6.31
1.1- 1.5	201	214	182	182	238	190	201	284	546	975	1031	591	417	361	249	140	0	6002
(1)	.39	.42	.35	.35	.46	.37	.39	.55	1.06	1.89	2.00	1.15	.81	.70	.48	.27	.00	11.65
(2)	.39	.42	.35	.35	.46	.37	.39	.55	1.06	1.89	2.00	1.15	.81	.70	.48	.27	.00	11.65
1.6- 2.0	320	433	281	349	360	269	282	391	629	950	1127	614	475	475	410	265	0	7630
(1)	.62	.84	.55	.68	.70	.52	.55	.76	1.22	1.84	2.19	1.19	.92	.92	.80	.51	.00	14.81
(2)	.62	.84	.55	.68	.70	.52	.55	.76	1.22	1.84	2.19	1.19	.92	.92	.80	.51	.00	14.81
2.1- 3.0	972	1151	795	800	646	438	514	836	980	1205	1969	1084	624	676	1008	630	0	14328
(1)	1.89	2.23	1.54	1.55	1.25	.85	1.00	1.62	1.90	2.34	3.82	2.10	1.21	1.31	1.96	1.22	.00	27.81
(2)	1.89	2.23	1.54	1.55	1.25	.85	1.00	1.62	1.90	2.34	3.82	2.10	1.21	1.31	1.96	1.22	.00	27.81
3.1- 4.0	1030	791	724	477	223	167	308	803	474	659	1406	625	365	394	794	669	0	9909
(1)	2.00	1.54	1.41	.93	.43	.32	.60	1.56	.92	1.28	2.73	1.21	.71	.76	1.54	1.30	.00	19.23
(2)	2.00	1.54	1.41	.93	.43	.32	.60	1.56	.92	1.28	2.73	1.21	.71	.76	1.54	1.30	.00	19.23
4.1- 5.0	675	422	488	261	64	35	116	420	182	311	671	212	196	375	597	435	0	5460
(1)	1.31	.82	.95	.51	.12	.07	.23	.82	.35	.60	1.30	.41	.38	.73	1.16	.84	.00	10.60
(2)	1.31	.82	.95	.51	.12	.07	.23	.82	.35	.60	1.30	.41	.38	.73	1.16	.84	.00	10.60
5.1- 6.0	397	226	306	130	5	7	34	192	52	97	245	57	93	281	428	182	0	2732
(1)	.77	.44	.59	.25	.01	.01	.07	.37	.10	.19	.48	.11	.18	.55	.83	.35	.00	5.30
(2)	.77	.44	.59	.25	.01	.01	.07	.37	.10	.19	.48	.11	.18	.55	.83	.35	.00	5.30
6.1- 8.0	216	85	211	65	3	3	10	107	24	41	49	23	41	249	309	68	0	1504
(1)	.42	.16	.41	.13	.01	.01	.02	.21	.05	.08	.10	.04	.08	.48	.60	.13	.00	2.92
(2)	.42	.16	.41	.13	.01	.01	.02	.21	.05	.08	.10	.04	.08	.48	.60	.13	.00	2.92
8.1-10.0	27	7	30	10	1	0	3	6	1	2	1	1	5	40	32	3	0	169
(1)	.05	.01	.06	.02	.00	.00	.01	.01	.00	.00	.00	.00	.01	.08	.06	.01	.00	.33
(2)	.05	.01	.06	.02	.00	.00	.01	.01	.00	.00	.00	.00	.01	.08	.06	.01	.00	.33
10.1-89.5	5	2	4	3	1	2	3	1	0	0	0	0	1	2	1	0	0	25
(1)	.01	.00	.01	.01	.00	.00	.01	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.05
(2)	.01	.00	.01	.01	.00	.00	.01	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.05
ALL SPEEDS	3965	3443	3147	2369	1676	1272	1625	3247	3221	4694	7040	3653	2551	3116	3972	2534	0	51525
(1)	7.70	6.68	6.11	4.60	3.25	2.47	3.15	6.30	6.25	9.11	13.66	7.09	4.95	6.05	7.71	4.92	.00	100.00
(2)	7.70	6.68	6.11	4.60	3.25	2.47	3.15	6.30	6.25	9.11	13.66	7.09	4.95	6.05	7.71	4.92	.00	100.00

(1)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PAGE

(2)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PERIOD

Table 2.3-11 — {CCNPP 197 ft (60 m) Annual JFD}

(Page 1 of 8)

CC JAN00-DEC05 MET DATA JOINT FREQUENCY DISTRIBUTION (60-METER TOWER)

197.0 FT WIND DATA STABILITY CLASS A CLASS FREQUENCY (PERCENT) = 11.75

WIND DIRECTION FROM

SPEED mps	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VRBL	TOTAL
LT .2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.2- .4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.5- 1.0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2
(1)	.00	.00	.02	.00	.02	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.03
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
1.1- 1.5	2	3	2	3	4	2	0	1	0	1	0	1	0	1	0	0	0	20
(1)	.03	.05	.03	.05	.07	.03	.00	.02	.00	.02	.00	.02	.00	.02	.00	.00	.00	.33
(2)	.00	.01	.00	.01	.01	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.04
1.6- 2.0	12	13	9	11	18	1	1	1	2	4	10	9	6	0	1	6	0	104
(1)	.20	.21	.15	.18	.30	.02	.02	.02	.03	.07	.16	.15	.10	.00	.02	.10	.00	1.71
(2)	.02	.03	.02	.02	.03	.00	.00	.00	.00	.01	.02	.02	.01	.00	.00	.01	.00	.20
2.1- 3.0	71	86	56	53	72	47	25	21	28	46	72	32	15	10	10	15	0	659
(1)	1.17	1.42	.92	.87	1.19	.77	.41	.35	.46	.76	1.19	.53	.25	.16	.16	.25	.00	10.86
(2)	.14	.17	.11	.10	.14	.09	.05	.04	.05	.09	.14	.06	.03	.02	.02	.03	.00	1.28
3.1- 4.0	150	173	32	18	28	51	62	87	51	113	144	89	40	25	18	21	0	1102
(1)	2.47	2.85	.53	.30	.46	.84	1.02	1.43	.84	1.86	2.37	1.47	.66	.41	.30	.35	.00	18.16
(2)	.29	.34	.06	.03	.05	.10	.12	.17	.10	.22	.28	.17	.08	.05	.03	.04	.00	2.13
4.1- 5.0	223	121	18	5	14	31	71	103	47	134	202	105	54	47	57	39	0	1271
(1)	3.67	1.99	.30	.08	.23	.51	1.17	1.70	.77	2.21	3.33	1.73	.89	.77	.94	.64	.00	20.94
(2)	.43	.23	.03	.01	.03	.06	.14	.20	.09	.26	.39	.20	.10	.09	.11	.08	.00	2.46
5.1- 6.0	150	83	13	1	7	6	54	87	36	97	191	81	56	67	68	54	0	1051
(1)	2.47	1.37	.21	.02	.12	.10	.89	1.43	.59	1.60	3.15	1.33	.92	1.10	1.12	.89	.00	17.32
(2)	.29	.16	.03	.00	.01	.01	.10	.17	.07	.19	.37	.16	.11	.13	.13	.10	.00	2.04
6.1- 8.0	137	74	21	5	5	6	35	86	21	140	222	77	62	165	162	63	0	1281
(1)	2.26	1.22	.35	.08	.08	.10	.58	1.42	.35	2.31	3.66	1.27	1.02	2.72	2.67	1.04	.00	21.11
(2)	.27	.14	.04	.01	.01	.01	.07	.17	.04	.27	.43	.15	.12	.32	.31	.12	.00	2.48
8.1-10.0	35	32	11	2	0	0	5	22	3	40	56	16	14	94	104	13	0	447
(1)	.58	.53	.18	.03	.00	.00	.08	.36	.05	.66	.92	.26	.23	1.55	1.71	.21	.00	7.37
(2)	.07	.06	.02	.00	.00	.00	.01	.04	.01	.08	.11	.03	.03	.18	.20	.03	.00	.87
10.1-89.5	4	6	9	1	0	0	0	6	1	12	5	5	9	31	38	5	0	132
(1)	.07	.10	.15	.02	.00	.00	.00	.10	.02	.20	.08	.08	.15	.51	.63	.08	.00	2.17
(2)	.01	.01	.02	.00	.00	.00	.00	.01	.00	.02	.01	.01	.02	.06	.07	.01	.00	.26
ALL SPEEDS	784	591	172	99	149	144	253	414	189	587	902	415	256	440	458	216	0	6069
(1)	12.92	9.74	2.83	1.63	2.46	2.37	4.17	6.82	3.11	9.67	14.86	6.84	4.22	7.25	7.55	3.56	.00	100.00
(2)	1.52	1.14	.33	.19	.29	.28	.49	.80	.37	1.14	1.75	.80	.50	.85	.89	.42	.00	11.75

(1)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PAGE

(2)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PERIOD

Table 2.3-11 — {CCNPP 197 ft (60 m) Annual JFD}

CC JAN00-DEC05 MET DATA JOINT FREQUENCY DISTRIBUTION (60-METER TOWER)

197.0 FT WIND DATA STABILITY CLASS B CLASS FREQUENCY (PERCENT) = 4.58

WIND DIRECTION FROM

SPEED mps	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VRBL	TOTAL
LT .2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.2- .4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.5- 1.0	0	1	1	0	1	0	0	1	0	0	0	0	1	0	2	0	0	7
(1)	.00	.04	.04	.00	.04	.00	.00	.04	.00	.00	.00	.00	.04	.00	.08	.00	.00	.30
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01
1.1- 1.5	2	4	2	5	3	3	3	1	0	0	4	2	1	0	0	0	0	30
(1)	.08	.17	.08	.21	.13	.13	.13	.04	.00	.00	.17	.08	.04	.00	.00	.00	.00	1.27
(2)	.00	.01	.00	.01	.01	.01	.01	.00	.00	.00	.01	.00	.00	.00	.00	.00	.00	.06
1.6- 2.0	6	10	12	17	10	10	3	1	4	2	7	5	0	1	3	1	0	92
(1)	.25	.42	.51	.72	.42	.42	.13	.04	.17	.08	.30	.21	.00	.04	.13	.04	.00	3.89
(2)	.01	.02	.02	.03	.02	.02	.01	.00	.01	.00	.01	.01	.00	.00	.01	.00	.00	.18
2.1- 3.0	56	75	43	33	58	28	22	15	12	22	21	31	14	9	4	13	0	456
(1)	2.37	3.17	1.82	1.40	2.45	1.18	.93	.63	.51	.93	.89	1.31	.59	.38	.17	.55	.00	19.28
(2)	.11	.15	.08	.06	.11	.05	.04	.03	.02	.04	.04	.06	.03	.02	.01	.03	.00	.88
3.1- 4.0	79	78	14	9	13	18	35	40	17	22	43	34	27	24	12	15	0	480
(1)	3.34	3.30	.59	.38	.55	.76	1.48	1.69	.72	.93	1.82	1.44	1.14	1.01	.51	.63	.00	20.30
(2)	.15	.15	.03	.02	.03	.03	.07	.08	.03	.04	.08	.07	.05	.05	.02	.03	.00	.93
4.1- 5.0	66	35	8	4	5	10	26	53	13	26	44	32	17	17	19	16	0	391
(1)	2.79	1.48	.34	.17	.21	.42	1.10	2.24	.55	1.10	1.86	1.35	.72	.72	.80	.68	.00	16.53
(2)	.13	.07	.02	.01	.01	.02	.05	.10	.03	.05	.09	.06	.03	.03	.04	.03	.00	.76
5.1- 6.0	41	22	8	1	3	1	21	39	6	32	46	21	15	19	25	17	0	317
(1)	1.73	.93	.34	.04	.13	.04	.89	1.65	.25	1.35	1.95	.89	.63	.80	1.06	.72	.00	13.40
(2)	.08	.04	.02	.00	.01	.00	.04	.08	.01	.06	.09	.04	.03	.04	.05	.03	.00	.61
6.1- 8.0	41	18	16	3	2	3	6	26	6	31	46	17	22	34	52	32	0	355
(1)	1.73	.76	.68	.13	.08	.13	.25	1.10	.25	1.31	1.95	.72	.93	1.44	2.20	1.35	.00	15.01
(2)	.08	.03	.03	.01	.00	.01	.01	.05	.01	.06	.09	.03	.04	.07	.10	.06	.00	.69
8.1-10.0	24	9	9	3	0	0	1	15	3	16	10	1	6	32	36	14	0	179
(1)	1.01	.38	.38	.13	.00	.00	.04	.63	.13	.68	.42	.04	.25	1.35	1.52	.59	.00	7.57
(2)	.05	.02	.02	.01	.00	.00	.00	.03	.01	.03	.02	.00	.01	.06	.07	.03	.00	.35
10.1-89.5	5	7	2	1	0	0	0	3	3	0	2	2	1	11	16	5	0	58
(1)	.21	.30	.08	.04	.00	.00	.00	.13	.13	.00	.08	.08	.04	.47	.68	.21	.00	2.45
(2)	.01	.01	.00	.00	.00	.00	.00	.01	.01	.00	.00	.00	.00	.02	.03	.01	.00	.11
ALL SPEEDS	320	259	115	76	95	73	117	194	64	151	223	145	104	147	169	113	0	2365
(1)	13.53	10.95	4.86	3.21	4.02	3.09	4.95	8.20	2.71	6.38	9.43	6.13	4.40	6.22	7.15	4.78	.00	100.00
(2)	.62	.50	.22	.15	.18	.14	.23	.38	.12	.29	.43	.28	.20	.28	.33	.22	.00	4.58

(1)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PAGE

(2)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PERIOD

Table 2.3-11 — {CCNPP 197 ft (60 m) Annual JFD}

(Page 3 of 8)

CC JAN00-DEC05 MET DATA JOINT FREQUENCY DISTRIBUTION (60-METER TOWER)

197.0 FT WIND DATA STABILITY CLASS C CLASS FREQUENCY (PERCENT) = 5.03

WIND DIRECTION FROM

SPEED mps	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VRBL	TOTAL
LT .2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.2- .4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.5- 1.0	1	1	1	0	0	2	1	1	1	1	0	3	0	1	0	0	0	13
(1)	.04	.04	.04	.00	.00	.08	.04	.04	.04	.04	.00	.12	.00	.04	.00	.00	.00	.50
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	.00	.00	.00	.00	.00	.03
1.1- 1.5	3	7	8	8	7	1	2	1	2	1	4	4	2	1	3	3	0	57
(1)	.12	.27	.31	.31	.27	.04	.08	.04	.08	.04	.15	.15	.08	.04	.12	.12	.00	2.19
(2)	.01	.01	.02	.02	.01	.00	.00	.00	.00	.00	.01	.01	.00	.00	.01	.01	.00	.11
1.6- 2.0	14	30	21	26	26	10	6	6	2	3	15	10	7	5	4	3	0	188
(1)	.54	1.15	.81	1.00	1.00	.38	.23	.23	.08	.12	.58	.38	.27	.19	.15	.12	.00	7.24
(2)	.03	.06	.04	.05	.05	.02	.01	.01	.00	.01	.03	.02	.01	.01	.01	.01	.00	.36
2.1- 3.0	60	91	46	54	48	37	31	25	18	13	35	22	17	17	4	10	0	528
(1)	2.31	3.50	1.77	2.08	1.85	1.42	1.19	.96	.69	.50	1.35	.85	.65	.65	.15	.38	.00	20.32
(2)	.12	.18	.09	.10	.09	.07	.06	.05	.03	.03	.07	.04	.03	.03	.01	.02	.00	1.02
3.1- 4.0	94	84	24	13	15	23	26	37	21	20	46	44	22	17	26	28	0	540
(1)	3.62	3.23	.92	.50	.58	.89	1.00	1.42	.81	.77	1.77	1.69	.85	.65	1.00	1.08	.00	20.79
(2)	.18	.16	.05	.03	.03	.04	.05	.07	.04	.04	.09	.09	.04	.03	.05	.05	.00	1.05
4.1- 5.0	55	41	10	3	9	7	16	64	14	32	42	33	20	18	30	29	0	423
(1)	2.12	1.58	.38	.12	.35	.27	.62	2.46	.54	1.23	1.62	1.27	.77	.69	1.15	1.12	.00	16.28
(2)	.11	.08	.02	.01	.02	.01	.03	.12	.03	.06	.08	.06	.04	.03	.06	.06	.00	.82
5.1- 6.0	41	23	7	6	1	2	4	38	9	22	36	23	15	18	21	21	0	287
(1)	1.58	.89	.27	.23	.04	.08	.15	1.46	.35	.85	1.39	.89	.58	.69	.81	.81	.00	11.05
(2)	.08	.04	.01	.01	.00	.00	.01	.07	.02	.04	.07	.04	.03	.03	.04	.04	.00	.56
6.1- 8.0	34	26	18	5	1	2	8	32	9	31	34	18	19	29	50	26	0	342
(1)	1.31	1.00	.69	.19	.04	.08	.31	1.23	.35	1.19	1.31	.69	.73	1.12	1.92	1.00	.00	13.16
(2)	.07	.05	.03	.01	.00	.00	.02	.06	.02	.06	.07	.03	.04	.06	.10	.05	.00	.66
8.1-10.0	13	23	9	3	1	0	1	9	2	8	15	2	5	28	29	7	0	155
(1)	.50	.89	.35	.12	.04	.00	.04	.35	.08	.31	.58	.08	.19	1.08	1.12	.27	.00	5.97
(2)	.03	.04	.02	.01	.00	.00	.00	.02	.00	.02	.03	.00	.01	.05	.06	.01	.00	.30
10.1-89.5	10	7	6	2	0	0	0	0	0	2	3	0	2	10	22	1	0	65
(1)	.38	.27	.23	.08	.00	.00	.00	.00	.00	.08	.12	.00	.08	.38	.85	.04	.00	2.50
(2)	.02	.01	.01	.00	.00	.00	.00	.00	.00	.00	.01	.00	.00	.02	.04	.00	.00	.13
ALL SPEEDS	325	333	150	120	108	84	95	213	78	133	230	159	109	144	189	128	0	2598
(1)	12.51	12.82	5.77	4.62	4.16	3.23	3.66	8.20	3.00	5.12	8.85	6.12	4.20	5.54	7.27	4.93	.00	100.00
(2)	.63	.64	.29	.23	.21	.16	.18	.41	.15	.26	.45	.31	.21	.28	.37	.25	.00	5.03

(1)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PAGE

(2)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PERIOD

Table 2.3-11 — {CCNPP 197 ft (60 m) Annual JFD}

(Page 4 of 8)

CC JAN00-DEC05 MET DATA JOINT FREQUENCY DISTRIBUTION (60-METER TOWER)

197.0 FT WIND DATA STABILITY CLASS D CLASS FREQUENCY (PERCENT) = 34.33

WIND DIRECTION FROM

SPEED mps	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VRBL	TOTAL
LT .2	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2
(1)	.00	.01	.00	.00	.00	.01	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.2- .4	0	2	0	0	1	0	0	1	0	0	0	0	1	2	1	1	0	9
(1)	.00	.01	.00	.00	.01	.00	.00	.01	.00	.00	.00	.00	.01	.01	.01	.01	.00	.05
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.02
.5- 1.0	18	18	25	20	25	12	10	12	10	12	10	9	8	10	6	16	0	221
(1)	.10	.10	.14	.11	.14	.07	.06	.07	.06	.07	.06	.05	.05	.06	.03	.09	.00	1.25
(2)	.03	.03	.05	.04	.05	.02	.02	.02	.02	.02	.02	.02	.02	.02	.01	.03	.00	.43
1.1- 1.5	40	42	42	49	54	33	23	14	15	16	18	21	21	15	18	20	0	441
(1)	.23	.24	.24	.28	.30	.19	.13	.08	.08	.09	.10	.12	.12	.08	.10	.11	.00	2.49
(2)	.08	.08	.08	.09	.10	.06	.04	.03	.03	.03	.03	.04	.04	.03	.03	.04	.00	.85
1.6- 2.0	63	96	66	84	109	57	35	20	28	17	48	32	28	24	27	46	0	780
(1)	.36	.54	.37	.47	.61	.32	.20	.11	.16	.10	.27	.18	.16	.14	.15	.26	.00	4.40
(2)	.12	.19	.13	.16	.21	.11	.07	.04	.05	.03	.09	.06	.05	.05	.05	.09	.00	1.51
2.1- 3.0	261	294	165	226	232	132	142	147	98	98	91	95	71	52	82	86	0	2272
(1)	1.47	1.66	.93	1.28	1.31	.74	.80	.83	.55	.55	.51	.54	.40	.29	.46	.49	.00	12.82
(2)	.51	.57	.32	.44	.45	.26	.28	.28	.19	.19	.18	.18	.14	.10	.16	.17	.00	4.40
3.1- 4.0	247	242	158	261	209	175	175	210	152	109	146	123	82	94	125	176	0	2684
(1)	1.39	1.37	.89	1.47	1.18	.99	.99	1.18	.86	.61	.82	.69	.46	.53	.71	.99	.00	15.14
(2)	.48	.47	.31	.51	.40	.34	.34	.41	.29	.21	.28	.24	.16	.18	.24	.34	.00	5.20
4.1- 5.0	248	201	224	259	193	115	154	284	135	138	135	114	66	84	160	223	0	2733
(1)	1.40	1.13	1.26	1.46	1.09	.65	.87	1.60	.76	.78	.76	.64	.37	.47	.90	1.26	.00	15.42
(2)	.48	.39	.43	.50	.37	.22	.30	.55	.26	.27	.26	.22	.13	.16	.31	.43	.00	5.29
5.1- 6.0	224	215	241	200	83	69	101	264	87	114	141	107	57	93	239	286	0	2521
(1)	1.26	1.21	1.36	1.13	.47	.39	.57	1.49	.49	.64	.80	.60	.32	.52	1.35	1.61	.00	14.22
(2)	.43	.42	.47	.39	.16	.13	.20	.51	.17	.22	.27	.21	.11	.18	.46	.55	.00	4.88
6.1- 8.0	406	430	377	194	62	41	82	283	105	151	264	106	68	189	439	434	0	3631
(1)	2.29	2.43	2.13	1.09	.35	.23	.46	1.60	.59	.85	1.49	.60	.38	1.07	2.48	2.45	.00	20.49
(2)	.79	.83	.73	.38	.12	.08	.16	.55	.20	.29	.51	.21	.13	.37	.85	.84	.00	7.03
8.1-10.0	278	302	215	46	3	3	21	97	36	71	103	12	23	139	217	148	0	1714
(1)	1.57	1.70	1.21	.26	.02	.02	.12	.55	.20	.40	.58	.07	.13	.78	1.22	.84	.00	9.67
(2)	.54	.58	.42	.09	.01	.01	.04	.19	.07	.14	.20	.02	.04	.27	.42	.29	.00	3.32
10.1-89.5	148	186	94	17	2	2	7	25	10	20	11	7	11	70	68	38	0	716
(1)	.84	1.05	.53	.10	.01	.01	.04	.14	.06	.11	.06	.04	.06	.39	.38	.21	.00	4.04
(2)	.29	.36	.18	.03	.00	.00	.01	.05	.02	.04	.02	.01	.02	.14	.13	.07	.00	1.39
ALL SPEEDS	1933	2029	1607	1356	973	640	750	1357	676	746	967	626	436	772	1382	1474	0	17724
(1)	10.91	11.45	9.07	7.65	5.49	3.61	4.23	7.66	3.81	4.21	5.46	3.53	2.46	4.36	7.80	8.32	.00	100.00
(2)	3.74	3.93	3.11	2.63	1.88	1.24	1.45	2.63	1.31	1.44	1.87	1.21	.84	1.50	2.68	2.85	.00	34.33

(1)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PAGE

(2)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PERIOD

Table 2.3-11 — {CCNPP 197 ft (60 m) Annual JFD}

(Page 5 of 8)

CC JAN00-DEC05 MET DATA JOINT FREQUENCY DISTRIBUTION (60-METER TOWER)

197.0 FT WIND DATA STABILITY CLASS E CLASS FREQUENCY (PERCENT) = 26.79

	WIND DIRECTION FROM																	
SPEED mps	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VRBL	TOTAL
LT .2	0	0	0	0	1	0	0	0	0	1	0	0	1	0	0	0	0	3
(1)	.00	.00	.00	.00	.01	.00	.00	.00	.00	.01	.00	.00	.01	.00	.00	.00	.00	.02
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01
.2- .4	2	0	2	0	1	0	1	1	2	0	0	0	0	0	1	0	0	10
(1)	.01	.00	.01	.00	.01	.00	.01	.01	.01	.00	.00	.00	.00	.00	.01	.00	.00	.07
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.02
.5- 1.0	10	8	18	11	20	18	12	20	6	14	5	7	8	7	12	10	0	186
(1)	.07	.06	.13	.08	.14	.13	.09	.14	.04	.10	.04	.05	.06	.05	.09	.07	.00	1.34
(2)	.02	.02	.03	.02	.04	.03	.02	.04	.01	.03	.01	.01	.02	.01	.02	.02	.00	.36
1.1- 1.5	17	18	17	18	17	11	20	15	12	10	12	6	8	12	10	11	0	214
(1)	.12	.13	.12	.13	.12	.08	.14	.11	.09	.07	.09	.04	.06	.09	.07	.08	.00	1.55
(2)	.03	.03	.03	.03	.03	.02	.04	.03	.02	.02	.02	.01	.02	.02	.02	.02	.00	.41
1.6- 2.0	19	36	30	29	45	22	17	25	25	19	21	16	9	20	9	13	0	355
(1)	.14	.26	.22	.21	.33	.16	.12	.18	.18	.14	.15	.12	.07	.14	.07	.09	.00	2.57
(2)	.04	.07	.06	.06	.09	.04	.03	.05	.05	.04	.04	.03	.02	.04	.02	.03	.00	.69
2.1- 3.0	81	63	75	89	103	72	72	65	76	49	78	49	51	69	74	80	0	1146
(1)	.59	.46	.54	.64	.74	.52	.52	.47	.55	.35	.56	.35	.37	.50	.54	.58	.00	8.29
(2)	.16	.12	.15	.17	.20	.14	.14	.13	.15	.09	.15	.09	.10	.13	.14	.15	.00	2.22
3.1- 4.0	152	94	87	76	104	88	79	153	145	115	138	118	100	147	132	174	0	1902
(1)	1.10	.68	.63	.55	.75	.64	.57	1.11	1.05	.83	1.00	.85	.72	1.06	.95	1.26	.00	13.75
(2)	.29	.18	.17	.15	.20	.17	.15	.30	.28	.22	.27	.23	.19	.28	.26	.34	.00	3.68
4.1- 5.0	169	108	87	41	29	86	121	269	290	201	186	161	127	258	334	322	0	2789
(1)	1.22	.78	.63	.30	.21	.62	.87	1.95	2.10	1.45	1.34	1.16	.92	1.87	2.42	2.33	.00	20.17
(2)	.33	.21	.17	.08	.06	.17	.23	.52	.56	.39	.36	.31	.25	.50	.65	.62	.00	5.40
5.1- 6.0	140	85	44	13	18	22	47	275	354	312	274	196	123	238	360	333	0	2834
(1)	1.01	.61	.32	.09	.13	.16	.34	1.99	2.56	2.26	1.98	1.42	.89	1.72	2.60	2.41	.00	20.49
(2)	.27	.16	.09	.03	.03	.04	.09	.53	.69	.60	.53	.38	.24	.46	.70	.64	.00	5.49
6.1- 8.0	114	109	28	5	6	15	20	208	377	753	756	163	107	219	291	260	0	3431
(1)	.82	.79	.20	.04	.04	.11	.14	1.50	2.73	5.44	5.47	1.18	.77	1.58	2.10	1.88	.00	24.81
(2)	.22	.21	.05	.01	.01	.03	.04	.40	.73	1.46	1.46	.32	.21	.42	.56	.50	.00	6.65
8.1-10.0	53	23	7	2	3	3	4	48	73	224	246	22	17	54	30	26	0	835
(1)	.38	.17	.05	.01	.02	.02	.03	.35	.53	1.62	1.78	.16	.12	.39	.22	.19	.00	6.04
(2)	.10	.04	.01	.00	.01	.01	.01	.09	.14	.43	.48	.04	.03	.10	.06	.05	.00	1.62
10.1-89.5	8	15	4	2	1	4	8	15	5	29	19	1	2	10	2	0	0	125
(1)	.06	.11	.03	.01	.01	.03	.06	.11	.04	.21	.14	.01	.01	.07	.01	.00	.00	.90
(2)	.02	.03	.01	.00	.00	.01	.02	.03	.01	.06	.04	.00	.00	.02	.00	.00	.00	.24
ALL SPEEDS	765	559	399	286	348	341	401	1094	1365	1727	1735	739	553	1034	1255	1229	0	13830
(1)	5.53	4.04	2.89	2.07	2.52	2.47	2.90	7.91	9.87	12.49	12.55	5.34	4.00	7.48	9.07	8.89	.00	100.00
(2)	1.48	1.08	.77	.55	.67	.66	.78	2.12	2.64	3.34	3.36	1.43	1.07	2.00	2.43	2.38	.00	26.79

(1)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PAGE

(2)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PERIOD

Table 2.3-11 — {CCNPP 197 ft (60 m) Annual JFD}

(Page 6 of 8)

CC JAN00-DEC05 MET DATA JOINT FREQUENCY DISTRIBUTION (60-METER TOWER)

197.0 FT WIND DATA STABILITY CLASS F CLASS FREQUENCY (PERCENT) = 10.32

WIND DIRECTION FROM

SPEED mps	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VRBL	TOTAL
LT .2	0	0	0	1	0	1	0	0	0	0	0	1	0	0	0	0	0	3
(1)	.00	.00	.00	.02	.00	.02	.00	.00	.00	.00	.00	.02	.00	.00	.00	.00	.00	.06
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01
.2- .4	2	1	0	0	0	1	1	1	1	0	1	1	0	0	0	0	0	9
(1)	.04	.02	.00	.00	.00	.02	.02	.02	.02	.00	.02	.02	.00	.00	.00	.00	.00	.17
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.02
.5- 1.0	6	5	6	10	10	12	7	8	6	10	10	5	6	5	7	5	0	118
(1)	.11	.09	.11	.19	.19	.23	.13	.15	.11	.19	.19	.09	.11	.09	.13	.09	.00	2.21
(2)	.01	.01	.01	.02	.02	.02	.01	.02	.01	.02	.02	.01	.01	.01	.01	.01	.00	.23
1.1- 1.5	6	9	8	7	15	5	8	12	11	7	6	2	9	9	9	8	0	131
(1)	.11	.17	.15	.13	.28	.09	.15	.23	.21	.13	.11	.04	.17	.17	.17	.15	.00	2.46
(2)	.01	.02	.02	.01	.03	.01	.02	.02	.02	.01	.01	.00	.02	.02	.02	.02	.00	.25
1.6- 2.0	7	6	11	14	16	13	17	10	12	14	12	11	9	10	10	11	0	183
(1)	.13	.11	.21	.26	.30	.24	.32	.19	.23	.26	.23	.21	.17	.19	.19	.21	.00	3.43
(2)	.01	.01	.02	.03	.03	.03	.03	.02	.02	.03	.02	.02	.02	.02	.02	.02	.00	.35
2.1- 3.0	44	36	27	22	28	23	25	31	40	40	37	31	30	44	20	35	0	513
(1)	.83	.68	.51	.41	.53	.43	.47	.58	.75	.75	.69	.58	.56	.83	.38	.66	.00	9.63
(2)	.09	.07	.05	.04	.05	.04	.05	.06	.08	.08	.07	.06	.06	.09	.04	.07	.00	.99
3.1- 4.0	40	20	25	16	16	25	46	50	90	80	81	65	53	49	48	49	0	753
(1)	.75	.38	.47	.30	.30	.47	.86	.94	1.69	1.50	1.52	1.22	.99	.92	.90	.92	.00	14.13
(2)	.08	.04	.05	.03	.03	.05	.09	.10	.17	.15	.16	.13	.10	.09	.09	.09	.00	1.46
4.1- 5.0	38	20	9	5	4	9	34	83	135	139	125	96	90	86	80	90	0	1043
(1)	.71	.38	.17	.09	.08	.17	.64	1.56	2.53	2.61	2.35	1.80	1.69	1.61	1.50	1.69	.00	19.57
(2)	.07	.04	.02	.01	.01	.02	.07	.16	.26	.27	.24	.19	.17	.17	.15	.17	.00	2.02
5.1- 6.0	15	9	4	3	0	3	23	92	243	226	147	105	101	95	111	69	0	1246
(1)	.28	.17	.08	.06	.00	.06	.43	1.73	4.56	4.24	2.76	1.97	1.90	1.78	2.08	1.29	.00	23.38
(2)	.03	.02	.01	.01	.00	.01	.04	.18	.47	.44	.28	.20	.20	.18	.21	.13	.00	2.41
6.1- 8.0	10	12	10	8	3	1	8	61	203	317	252	115	49	54	125	18	0	1246
(1)	.19	.23	.19	.15	.06	.02	.15	1.14	3.81	5.95	4.73	2.16	.92	1.01	2.35	.34	.00	23.38
(2)	.02	.02	.02	.02	.01	.00	.02	.12	.39	.61	.49	.22	.09	.10	.24	.03	.00	2.41
8.1-10.0	5	2	1	3	0	0	0	0	5	24	30	2	1	1	1	0	0	75
(1)	.09	.04	.02	.06	.00	.00	.00	.00	.09	.45	.56	.04	.02	.02	.02	.00	.00	1.41
(2)	.01	.00	.00	.01	.00	.00	.00	.00	.01	.05	.06	.00	.00	.00	.00	.00	.00	.15
10.1-89.5	4	3	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	9
(1)	.08	.06	.00	.00	.00	.00	.00	.00	.00	.02	.02	.00	.00	.00	.00	.00	.00	.17
(2)	.01	.01	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.02
ALL SPEEDS	177	123	101	89	92	93	169	348	746	858	702	434	348	353	411	285	0	5329
(1)	3.32	2.31	1.90	1.67	1.73	1.75	3.17	6.53	14.00	16.10	13.17	8.14	6.53	6.62	7.71	5.35	.00	100.00
(2)	.34	.24	.20	.17	.18	.18	.33	.67	1.44	1.66	1.36	.84	.67	.68	.80	.55	.00	10.32

(1)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PAGE

(2)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PERIOD

Table 2.3-11 — {CCNPP 197 ft (60 m) Annual JFD}

(Page 7 of 8)

CC JAN00-DEC05 MET DATA JOINT FREQUENCY DISTRIBUTION (60-METER TOWER)

197.0 FT WIND DATA STABILITY CLASS G CLASS FREQUENCY (PERCENT) = 7.20

WIND DIRECTION FROM

SPEED mps	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VRBL	TOTAL
LT .2	0	0	0	0	1	0	0	0	0	0	2	1	2	0	1	0	0	7
(1)	.00	.00	.00	.00	.03	.00	.00	.00	.00	.00	.05	.03	.05	.00	.03	.00	.00	.19
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01
.2- .4	2	1	1	0	2	1	3	0	1	1	0	1	1	0	0	1	0	15
(1)	.05	.03	.03	.00	.05	.03	.08	.00	.03	.03	.00	.03	.03	.00	.00	.03	.00	.40
(2)	.00	.00	.00	.00	.00	.00	.01	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.03
.5- 1.0	11	7	9	5	13	7	12	11	3	10	8	10	5	8	10	10	0	139
(1)	.30	.19	.24	.13	.35	.19	.32	.30	.08	.27	.22	.27	.13	.22	.27	.27	.00	3.74
(2)	.02	.01	.02	.01	.03	.01	.02	.02	.01	.02	.02	.02	.01	.02	.02	.02	.00	.27
1.1- 1.5	17	10	19	10	17	10	11	11	11	9	13	18	11	10	9	10	0	196
(1)	.46	.27	.51	.27	.46	.27	.30	.30	.30	.24	.35	.48	.30	.27	.24	.27	.00	5.28
(2)	.03	.02	.04	.02	.03	.02	.02	.02	.02	.02	.03	.03	.02	.02	.02	.02	.00	.38
1.6- 2.0	15	16	10	12	17	7	23	10	25	23	17	12	17	8	9	9	0	230
(1)	.40	.43	.27	.32	.46	.19	.62	.27	.67	.62	.46	.32	.46	.22	.24	.24	.00	6.19
(2)	.03	.03	.02	.02	.03	.01	.04	.02	.05	.04	.03	.02	.03	.02	.02	.02	.00	.45
2.1- 3.0	34	28	14	19	20	23	23	29	36	56	35	41	38	30	26	29	0	481
(1)	.92	.75	.38	.51	.54	.62	.62	.78	.97	1.51	.94	1.10	1.02	.81	.70	.78	.00	12.95
(2)	.07	.05	.03	.04	.04	.04	.04	.06	.07	.11	.07	.08	.07	.06	.05	.06	.00	.93
3.1- 4.0	29	11	4	3	7	5	28	42	59	61	81	77	54	48	31	44	0	584
(1)	.78	.30	.11	.08	.19	.13	.75	1.13	1.59	1.64	2.18	2.07	1.45	1.29	.83	1.18	.00	15.72
(2)	.06	.02	.01	.01	.01	.01	.05	.08	.11	.12	.16	.15	.10	.09	.06	.09	.00	1.13
4.1- 5.0	10	0	1	2	0	5	9	47	91	123	127	100	62	58	49	56	0	740
(1)	.27	.00	.03	.05	.00	.13	.24	1.27	2.45	3.31	3.42	2.69	1.67	1.56	1.32	1.51	.00	19.92
(2)	.02	.00	.00	.00	.00	.01	.02	.09	.18	.24	.25	.19	.12	.11	.09	.11	.00	1.43
5.1- 6.0	3	3	1	0	0	5	4	27	118	143	114	73	59	46	45	41	0	682
(1)	.08	.08	.03	.00	.00	.13	.11	.73	3.18	3.85	3.07	1.97	1.59	1.24	1.21	1.10	.00	18.36
(2)	.01	.01	.00	.00	.00	.01	.01	.05	.23	.28	.22	.14	.11	.09	.09	.08	.00	1.32
6.1- 8.0	2	4	7	2	0	4	3	33	102	128	83	55	55	42	61	4	0	585
(1)	.05	.11	.19	.05	.00	.11	.08	.89	2.75	3.45	2.23	1.48	1.48	1.13	1.64	.11	.00	15.75
(2)	.00	.01	.01	.00	.00	.01	.01	.06	.20	.25	.16	.11	.11	.08	.12	.01	.00	1.13
8.1-10.0	0	0	2	2	0	0	0	1	2	8	4	11	3	5	3	0	0	41
(1)	.00	.00	.05	.05	.00	.00	.00	.03	.05	.22	.11	.30	.08	.13	.08	.00	.00	1.10
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.02	.01	.02	.01	.01	.01	.00	.00	.08
10.1-89.5	0	3	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15
(1)	.00	.08	.32	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.40
(2)	.00	.01	.02	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.03
ALL SPEEDS	123	83	80	55	77	67	116	211	448	562	484	399	307	255	244	204	0	3715
(1)	3.31	2.23	2.15	1.48	2.07	1.80	3.12	5.68	12.06	15.13	13.03	10.74	8.26	6.86	6.57	5.49	.00	100.00
(2)	.24	.16	.15	.11	.15	.13	.22	.41	.87	1.09	.94	.77	.59	.49	.47	.40	.00	7.20

(1)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PAGE

(2)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PERIOD

Table 2.3-11 — {CCNPP 197 ft (60 m) Annual JFD}

(Page 8 of 8)

CC JAN00-DEC05 MET DATA JOINT FREQUENCY DISTRIBUTION (60-METER TOWER)

197.0 FT WIND DATA STABILITY CLASS ALL CLASS FREQUENCY (PERCENT) = 100.00

WIND DIRECTION FROM

SPEED mps	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VRBL	TOTAL
LT .2	0	1	0	1	2	2	0	0	0	1	2	2	3	0	1	0	0	15
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	.00	.00	.00	.00	.03
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	.00	.00	.00	.00	.03
.2- .4	6	4	3	0	4	2	5	3	4	1	1	2	2	2	2	2	0	43
(1)	.01	.01	.01	.00	.01	.00	.01	.01	.01	.00	.00	.00	.00	.00	.00	.00	.00	.08
(2)	.01	.01	.01	.00	.01	.00	.01	.01	.01	.00	.00	.00	.00	.00	.00	.00	.00	.08
.5- 1.0	46	40	61	46	70	51	42	53	26	47	33	34	28	31	37	41	0	686
(1)	.09	.08	.12	.09	.14	.10	.08	.10	.05	.09	.06	.07	.05	.06	.07	.08	.00	1.33
(2)	.09	.08	.12	.09	.14	.10	.08	.10	.05	.09	.06	.07	.05	.06	.07	.08	.00	1.33
1.1- 1.5	87	93	98	100	117	65	67	55	51	44	57	54	52	48	49	52	0	1089
(1)	.17	.18	.19	.19	.23	.13	.13	.11	.10	.09	.11	.10	.10	.09	.09	.10	.00	2.11
(2)	.17	.18	.19	.19	.23	.13	.13	.11	.10	.09	.11	.10	.10	.09	.09	.10	.00	2.11
1.6- 2.0	136	207	159	193	241	120	102	73	98	82	130	95	76	68	63	89	0	1932
(1)	.26	.40	.31	.37	.47	.23	.20	.14	.19	.16	.25	.18	.15	.13	.12	.17	.00	3.74
(2)	.26	.40	.31	.37	.47	.23	.20	.14	.19	.16	.25	.18	.15	.13	.12	.17	.00	3.74
2.1- 3.0	607	673	426	496	561	362	340	333	308	324	369	301	236	231	220	268	0	6055
(1)	1.18	1.30	.83	.96	1.09	.70	.66	.64	.60	.63	.71	.58	.46	.45	.43	.52	.00	11.73
(2)	1.18	1.30	.83	.96	1.09	.70	.66	.64	.60	.63	.71	.58	.46	.45	.43	.52	.00	11.73
3.1- 4.0	791	702	344	396	392	385	451	619	535	520	679	550	378	404	392	507	0	8045
(1)	1.53	1.36	.67	.77	.76	.75	.87	1.20	1.04	1.01	1.32	1.07	.73	.78	.76	.98	.00	15.58
(2)	1.53	1.36	.67	.77	.76	.75	.87	1.20	1.04	1.01	1.32	1.07	.73	.78	.76	.98	.00	15.58
4.1- 5.0	809	526	357	319	254	263	431	903	725	793	861	641	436	568	729	775	0	9390
(1)	1.57	1.02	.69	.62	.49	.51	.83	1.75	1.40	1.54	1.67	1.24	.84	1.10	1.41	1.50	.00	18.19
(2)	1.57	1.02	.69	.62	.49	.51	.83	1.75	1.40	1.54	1.67	1.24	.84	1.10	1.41	1.50	.00	18.19
5.1- 6.0	614	440	318	224	112	108	254	822	853	946	949	606	426	576	869	821	0	8938
(1)	1.19	.85	.62	.43	.22	.21	.49	1.59	1.65	1.83	1.84	1.17	.83	1.12	1.68	1.59	.00	17.31
(2)	1.19	.85	.62	.43	.22	.21	.49	1.59	1.65	1.83	1.84	1.17	.83	1.12	1.68	1.59	.00	17.31
6.1- 8.0	744	673	477	222	79	72	162	729	823	1551	1657	551	382	732	1180	837	0	10871
(1)	1.44	1.30	.92	.43	.15	.14	.31	1.41	1.59	3.00	3.21	1.07	.74	1.42	2.29	1.62	.00	21.06
(2)	1.44	1.30	.92	.43	.15	.14	.31	1.41	1.59	3.00	3.21	1.07	.74	1.42	2.29	1.62	.00	21.06
8.1-10.0	408	391	254	61	7	6	32	192	124	391	464	66	69	353	420	208	0	3446
(1)	.79	.76	.49	.12	.01	.01	.06	.37	.24	.76	.90	.13	.13	.68	.81	.40	.00	6.67
(2)	.79	.76	.49	.12	.01	.01	.06	.37	.24	.76	.90	.13	.13	.68	.81	.40	.00	6.67
10.1-89.5	179	227	127	23	3	6	15	49	19	64	41	15	25	132	146	49	0	1120
(1)	.35	.44	.25	.04	.01	.01	.03	.09	.04	.12	.08	.03	.05	.26	.28	.09	.00	2.17
(2)	.35	.44	.25	.04	.01	.01	.03	.09	.04	.12	.08	.03	.05	.26	.28	.09	.00	2.17
ALL SPEEDS	4427	3977	2624	2081	1842	1442	1901	3831	3566	4764	5243	2917	2113	3145	4108	3649	0	51630
(1)	8.57	7.70	5.08	4.03	3.57	2.79	3.68	7.42	6.91	9.23	10.15	5.65	4.09	6.09	7.96	7.07	.00	100.00
(2)	8.57	7.70	5.08	4.03	3.57	2.79	3.68	7.42	6.91	9.23	10.15	5.65	4.09	6.09	7.96	7.07	.00	100.00

(1)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PAGE

(2)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PERIOD

Table 2.3-12 — {CCNPP 33 Feet Wind Direction Persistence Summary for Year 2000}
(Page 1 of 2)

	Direction Persistence (Hours)/Percent																									
SECTOR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	GT.24	TOTAL
N	158	55	22	15	14	9	2	2	1	1	0	2	0	0	0	0	1	0	0	0	0	0	0	0	0	282
	56	76	83	89	94	97	98	98	99	99	99	100	100	100	100	100	100	0	0	0	0	0	0	0	0	
NNE	176	63	35	13	12	4	2	0	1	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	308
	57	78	89	93	97	98	99	99	99	99	100	100	100	100	0	0	0	0	0	0	0	0	0	0	0	
NE	159	54	25	8	4	3	3	4	3	1	1	0	0	1	0	1	0	0	0	0	0	0	0	0	0	267
	60	80	89	92	94	95	96	97	99	99	99	99	99	100	100	100	0	0	0	0	0	0	0	0	0	
ENE	156	33	17	9	2	4	2	1	0	2	1	0	1	0	0	2	0	0	0	0	0	0	0	0	0	230
	68	82	90	93	94	96	97	97	97	98	99	99	99	99	99	100	0	0	0	0	0	0	0	0	0	
E	112	35	12	7	2	2	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	172
	65	85	92	97	98	99	99	99	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
ESE	76	26	4	2	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	112
	68	91	95	96	96	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
SE	110	19	7	2	2	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	141
	78	91	96	98	99	99	99	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
SSE	139	41	27	15	6	1	4	1	1	2	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	238
	58	76	87	93	96	96	98	98	99	100	100	100	100	0	0	0	0	0	0	0	0	0	0	0	0	
S	192	49	25	14	5	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	287
	67	84	93	98	99	99	100	100	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Table 2.3-12 — {CCNPP 33 Feet Wind Direction Persistence Summary for Year 2000}

(Page 2 of 2)

	Direction Persistence (Hours)/Percent																									
SECTOR	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**GT.24**	**TOTAL**
SSW	227	86	36	16	11	8	0	2	5	0	1	0	0	1	0	0	1	0	0	0	0	0	0	0	0	394
	58	79	89	93	95	97	97	98	99	99	99	99	99	100	100	100	100	0	0	0	0	0	0	0	0	
SW	234	103	45	23	22	17	8	10	4	4	1	2	1	0	0	1	0	0	1	1	0	0	0	0	0	477
	49	71	80	85	90	93	95	97	98	99	99	99	99	99	99	100	100	100	100	100	0	0	0	0	0	
WSW	216	82	23	20	9	5	3	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	359
	60	83	89	95	97	99	100	100	100	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
W	198	53	29	3	6	2	0	2	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	295
	67	85	95	96	98	99	99	99	99	100	100	100	0	0	0	0	0	0	0	0	0	0	0	0	0	
WNW	203	66	32	10	8	3	3	3	1	2	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	332
	61	81	91	94	96	97	98	99	99	100	100	100	100	100	100	100	100	100	100	100	100	0	0	0	0	
NW	202	58	36	15	13	11	5	4	4	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	350
	58	74	85	89	93	96	97	98	99	100	100	100	0	0	0	0	0	0	0	0	0	0	0	0	0	
NNW	157	50	18	8	2	0	2	1	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	241
	65	86	93	97	98	98	98	99	100	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
TOTAL	2715	873	393	180	118	73	36	31	24	16	5	6	3	3	0	4	2	0	1	1	1	0	0	0	0	4485

Table 2.3-13 — {CCNPP 33 Feet Wind Direction Persistence Summary for Year 2001}

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	Direction Persistence (Hours)/Percent																									
SECTOR	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**GT.24**	**TOTAL**
N	143	60	35	26	9	5	5	8	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	292
	49	70	82	90	93	95	97	100	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
NNE	183	65	33	7	4	4	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	300
	61	83	94	96	97	99	99	100	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
NE	159	41	17	10	7	5	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	242
	66	83	90	94	97	99	99	100	100	100	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
ENE	111	47	15	2	1	4	1	3	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	187
	59	84	93	94	94	96	97	98	99	99	99	100	0	0	0	0	0	0	0	0	0	0	0	0	0	
E	116	31	16	2	2	2	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	171
	68	86	95	96	98	99	99	99	99	99	99	99	99	100	0	0	0	0	0	0	0	0	0	0	0	
ESE	109	30	8	5	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	154
	71	90	95	99	99	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
SE	99	37	17	3	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	158
	63	86	97	99	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
SSE	129	49	28	16	11	5	5	3	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	249
	52	71	83	89	94	96	98	99	99	100	100	100	100	0	0	0	0	0	0	0	0	0	0	0	0	
S	195	63	28	13	13	5	3	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	321
	61	80	89	93	97	99	100	100	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Table 2.3-13 — {CCNPP 33 Feet Wind Direction Persistence Summary for Year 2001}

(Page 2 of 2)

	Direction Persistence (Hours)/Percent																									
SECTOR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	GT.24	TOTAL
SSW	253	75	59	31	15	4	3	6	0	0	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	449
	56	73	86	93	96	97	98	99	99	99	100	100	100	0	0	0	0	0	0	0	0	0	0	0	0	
SW	258	104	42	27	24	16	10	2	11	3	0	2	2	2	0	0	2	0	0	1	0	0	0	0	0	506
	51	72	80	85	90	93	95	95	98	98	98	99	99	99	99	99	100	100	100	100	0	0	0	0	0	
WSW	240	66	39	16	6	5	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	376
	64	81	92	96	98	99	99	100	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
W	175	51	17	6	3	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	254
	69	89	96	98	99	100	100	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
WNW	194	58	26	8	10	4	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	301
	64	84	92	95	98	100	100	100	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
NW	179	59	26	20	13	8	4	3	2	2	1	0	2	0	1	0	0	0	0	0	0	0	0	0	0	320
	56	74	83	89	93	95	97	98	98	99	99	99	100	100	100	0	0	0	0	0	0	0	0	0	0	
NNW	162	45	20	13	6	4	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	254
	64	81	89	94	97	98	99	100	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
TOTAL	2705	881	426	205	127	73	39	30	21	6	5	3	6	3	1	0	2	0	0	1	0	0	0	0	0	4534

Table 2.3-14 — {CCNPP 33 Feet Wind Direction Persistence Summary for Year 2002}

(Page 1 of 2)

	Direction Persistence (Hours)/Percent																									
SECTOR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	GT.24	TOTAL
N	145	70	37	15	13	6	5	7	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	300
	48	72	84	89	93	95	97	99	99	99	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
NNE	165	73	27	19	7	4	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	299
	55	80	89	95	97	99	99	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
NE	144	51	26	11	9	2	1	3	1	3	1	0	0	0	1	0	1	0	0	0	0	0	0	0	0	254
	57	77	87	91	95	96	96	97	98	99	99	99	99	99	100	100	100	0	0	0	0	0	0	0	0	
ENE	124	37	21	9	5	5	1	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	206
	60	78	88	93	95	98	98	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
E	95	30	15	0	2	1	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	145
	66	86	97	97	98	99	99	99	99	99	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
ESE	94	24	3	2	4	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	128
	73	92	95	96	99	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
SE	124	36	12	3	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	178
	70	90	97	98	99	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
SSE	127	49	20	12	11	7	1	2	4	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	237
	54	74	83	88	92	95	96	97	98	99	100	100	0	0	0	0	0	0	0	0	0	0	0	0	0	
S	149	62	24	13	8	6	3	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	267
	56	79	88	93	96	98	99	99	100	100	100	100	0	0	0	0	0	0	0	0	0	0	0	0	0	

Table 2.3-14 — {CCNPP 33 Feet Wind Direction Persistence Summary for Year 2002}
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	Direction Persistence (Hours)/Percent																								
SECTOR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	GT.24	TOTAL
SSW	213	85	41	20	11	10	5	2	4	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	392
	54	76	86	92	94	97	98	99	100	100	100	100	0	0	0	0	0	0	0	0	0	0	0	0	0	
SW	238	95	54	20	19	12	8	8	8	8	3	4	2	0	0	2	0	0	1	1	0	0	0	0	1	484
	49	69	80	84	88	90	92	94	95	97	98	99	99	99	99	99	99	99	100	100	100	100	100	100	100	
WSW	214	67	26	17	11	4	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	342
	63	82	90	95	98	99	99	99	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
W	177	44	20	12	3	2	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	259
	68	85	93	98	99	100	100	100	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
WNW	170	51	7	12	8	3	1	3	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	257
	66	86	89	93	96	98	98	99	100	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
NW	144	68	34	18	10	3	3	3	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	286
	50	74	86	92	96	97	98	99	100	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
NNW	147	60	23	19	11	4	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	267
	55	78	86	93	97	99	99	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
TOTAL	2470	902	390	202	134	71	31	37	24	16	8	7	2	0	1	2	1	0	1	1	0	0	0	0	1	4301

Table 2.3-15 — {CCNPP 33 Feet Wind Direction Persistence Summary for Year 2003}

(Page 1 of 2)

	Direction Persistence (Hours)/Percent																									
SECTOR	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**GT.24**	**TOTAL**
N	145	73	34	13	10	9	4	4	1	2	3	1	0	1	0	1	0	0	0	0	0	0	0	0	0	301
	48	72	84	88	91	94	96	97	97	98	99	99	99	100	100	100	0	0	0	0	0	0	0	0	0	
NNE	180	68	36	18	6	5	3	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	320
	56	78	89	94	96	98	99	99	99	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
NE	161	57	21	13	7	7	2	1	2	1	2	1	2	0	0	0	1	0	1	0	0	0	1	0	0	280
	58	78	85	90	93	95	96	96	97	97	98	98	99	99	99	99	99	99	100	100	100	100	100	0	0	
ENE	114	40	17	12	2	3	4	0	3	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	198
	58	78	86	92	93	95	97	97	98	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	100	
E	111	26	12	7	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	159
	70	86	94	98	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
ESE	110	22	8	3	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	146
	75	90	96	98	99	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
SE	134	30	16	8	4	2	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	197
	68	83	91	95	97	98	99	99	99	99	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
SSE	139	56	33	11	6	11	3	4	1	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	267
	52	73	85	90	92	96	97	99	99	100	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
S	173	68	28	15	13	2	1	2	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	304
	57	79	88	93	98	98	99	99	100	100	100	100	0	0	0	0	0	0	0	0	0	0	0	0	0	

Table 2.3-15 — {CCNPP 33 Feet Wind Direction Persistence Summary for Year 2003}

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	Direction Persistence (Hours)/Percent																								
SECTOR	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**GT.24**	**TOTAL**
SSW	220	75	32	22	7	7	0	4	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	371
	59	80	88	94	96	98	98	99	99	100	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
SW	248	77	40	30	12	8	9	5	4	4	4	0	1	1	2	1	0	0	0	0	0	0	0	0	0	446
	56	73	82	89	91	93	95	96	97	98	99	99	99	99	100	100	0	0	0	0	0	0	0	0	0	
WSW	214	69	29	13	6	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	335
	64	84	93	97	99	100	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
W	202	43	17	11	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	280
	72	88	94	98	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
WNW	202	60	26	9	4	7	1	2	1	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	314
	64	83	92	95	96	98	98	99	99	99	100	100	100	100	0	0	0	0	0	0	0	0	0	0	0	
NW	198	63	38	21	6	6	5	2	0	2	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	343
	58	76	87	93	95	97	98	99	99	99	99	100	100	100	0	0	0	0	0	0	0	0	0	0	0	
NNW	148	56	14	13	4	0	3	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	239
	62	85	91	97	98	98	100	100	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
TOTAL	2699	883	401	219	99	71	38	26	16	15	13	5	3	4	2	2	1	0	1	0	0	0	1	0	1	4500

Table 2.3-16 — {CCNPP 33 Feet Wind Direction Persistence Summary for Year 2004}

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	Direction Persistence (Hours)/Percent																									
SECTOR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	GT.24	TOTAL
N	151	61	39	23	10	2	2	4	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	295
	51	72	85	93	96	97	98	99	99	100	100	100	100	100	0	0	0	0	0	0	0	0	0	0	0	
NNE	185	59	34	13	9	1	5	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	309
	60	79	90	94	97	97	99	99	99	99	100	100	100	0	0	0	0	0	0	0	0	0	0	0	0	
NE	156	54	19	8	10	5	1	1	0	0	2	0	0	1	0	0	1	0	0	0	0	0	0	0	0	258
	60	81	89	92	96	98	98	98	98	98	99	99	99	100	100	100	100	0	0	0	0	0	0	0	0	
ENE	142	46	21	8	5	3	0	1	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	229
	62	82	91	95	97	98	98	99	99	99	100	100	0	0	0	0	0	0	0	0	0	0	0	0	0	
E	145	31	15	5	3	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	201
	72	88	95	98	99	100	100	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
ESE	128	18	10	3	5	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	168
	76	87	93	95	98	99	99	99	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
SE	121	41	15	4	2	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	187
	65	87	95	97	98	99	99	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
SSE	136	42	23	16	11	5	9	4	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	248
	55	72	81	88	92	94	98	99	99	100	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
S	194	65	33	15	10	2	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	321
	60	81	91	96	99	99	100	100	100	100	100	100	0	0	0	0	0	0	0	0	0	0	0	0	0	

Table 2.3-16 — {CCNPP 33 Feet Wind Direction Persistence Summary for Year 2004}
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	Direction Persistence (Hours)/Percent																									
SECTOR	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**GT.24**	**TOTAL**
SSW	226	82	51	22	16	9	3	2	2	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	415
	54	74	87	92	96	98	99	99	100	100	100	100	100	0	0	0	0	0	0	0	0	0	0	0	0	
SW	241	88	45	26	18	6	9	8	5	7	5	5	1	0	0	0	0	0	1	1	0	0	0	0	0	466
	52	71	80	86	90	91	93	95	96	97	98	99	100	100	100	100	100	100	100	100	0	0	0	0	0	
WSW	251	64	33	10	6	6	3	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	375
	67	84	93	95	97	99	99	100	100	100	100	100	0	0	0	0	0	0	0	0	0	0	0	0	0	
W	192	51	15	7	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	268
	72	91	96	99	100	100	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
WNW	173	63	23	12	3	3	1	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	280
	62	84	93	97	98	99	99	100	100	100	100	100	100	100	100	100	100	100	0	0	0	0	0	0	0	
NW	166	62	32	21	8	3	2	3	2	2	1	0	0	2	1	1	0	0	0	0	0	0	0	0	0	306
	54	75	85	92	94	95	96	97	98	98	99	99	99	99	100	100	0	0	0	0	0	0	0	0	0	
NNW	175	38	18	8	2	3	0	1	1	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	248
	71	86	93	96	97	98	98	99	99	99	99	100	0	0	0	0	0	0	0	0	0	0	0	0	0	
TOTAL	2782	865	426	201	120	53	37	29	13	13	12	10	3	4	1	1	1	1	1	1	0	0	0	0	0	4574

Table 2.3-17 — {CCNPP 33 Feet Wind Direction Persistence Summary for Year 2005}

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	Direction Persistence (Hours)/Percent																									
SECTOR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	GT.24	TOTAL
N	157	69	35	15	10	13	6	1	6	0	0	1	0	0	2	0	0	0	0	0	0	0	0	0	0	315
	50	72	83	88	91	95	97	97	99	99	99	99	99	99	100	0	0	0	0	0	0	0	0	0	0	
NNE	199	67	26	14	7	6	2	4	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	327
	61	81	89	94	96	98	98	99	99	99	99	100	100	100	100	100	0	0	0	0	0	0	0	0	0	
NE	151	45	29	13	8	7	2	4	3	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	264
	57	74	85	90	93	96	97	98	99	99	99	99	99	100	0	0	0	0	0	0	0	0	0	0	0	
ENE	142	49	15	7	6	4	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	226
	63	85	91	94	97	99	99	99	100	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
E	116	37	17	8	6	5	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	191
	61	80	89	93	96	99	99	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
ESE	122	22	11	4	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	162
	75	89	96	98	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
SE	135	37	4	6	4	1	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	189
	71	91	93	96	98	99	99	99	99	99	99	99	99	99	99	100	0	0	0	0	0	0	0	0	0	
SSE	129	49	31	15	9	9	5	4	1	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	254
	51	70	82	88	92	95	97	99	99	99	99	99	99	100	0	0	0	0	0	0	0	0	0	0	0	
S	176	47	37	16	2	9	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	290
	61	77	90	95	96	99	99	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Table 2.3-17 — {CCNPP 33 Feet Wind Direction Persistence Summary for Year 2005}

(Page 2 of 2)

	Direction Persistence (Hours)/Percent																									
SECTOR	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**GT.24**	**TOTAL**
SSW	208	71	31	17	10	5	4	0	2	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	351
	59	79	88	93	96	97	99	99	99	99	99	100	0	0	0	0	0	0	0	0	0	0	0	0	0	
SW	232	75	45	23	24	9	11	4	2	4	2	1	1	2	0	0	0	0	0	1	0	0	0	0	0	436
	53	70	81	86	92	94	96	97	97	98	99	99	99	100	100	100	100	100	100	100	0	0	0	0	0	
WSW	222	65	36	12	8	4	1	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	350
	63	82	92	96	98	99	99	100	100	100	100	100	100	100	100	100	100	0	0	0	0	0	0	0	0	
W	210	62	22	5	3	2	1	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	308
	68	88	95	97	98	99	99	100	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
WNW	189	56	17	14	4	3	1	2	2	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	291
	65	84	90	95	96	97	98	98	99	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
NW	160	72	23	16	11	4	1	0	0	2	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	291
	55	80	88	93	97	98	99	99	99	99	99	99	99	99	99	99	99	99	99	99	100	100	100	100	100	
NNW	133	35	19	5	3	2	2	1	1	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	204
	65	82	92	94	96	97	98	98	99	99	100	100	100	100	100	0	0	0	0	0	0	0	0	0	0	
TOTAL	2681	858	398	190	118	83	40	26	19	12	3	5	1	6	3	2	1	0	0	1	1	0	0	0	1	4449

Table 2.3-18 — {CCNPP 33 Feet Average Wind Direction Persistence Summary for Years 2000-2005}

(Page 1 of 2)

	Direction Persistence (Hours)/Percent																								
SECTOR	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**GT.24**	**TOTAL**
N	150	65	34	18	11	7	4	4	2	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	298
	50	72	84	90	93	96	97	98	99	83	83	66	66	67	50	33	17	0	0	0	0	0	0	0	0	0
NNE	181	66	32	14	8	4	3	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	311
	58	80	90	94	97	98	99	99	83	66	50	50	50	33	17	17	0	0	0	0	0	0	0	0	0	0
NE	155	50	23	11	8	5	2	2	2	1	1	0	0	1	0	0	1	0	0	0	0	0	0	0	0	261
	60	79	88	92	95	97	97	98	99	99	99	82	83	83	67	67	50	17	17	17	17	17	17	0	0	0
ENE	132	42	18	8	4	4	2	2	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	213
	62	82	90	94	95	97	98	98	82	83	66	66	33	33	33	33	17	17	17	17	17	17	17	17	17	0
E	116	32	15	5	3	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	173
	67	85	94	97	98	83	83	83	50	33	33	17	17	17	0	0	0	0	0	0	0	0	0	0	0	0
ESE	107	24	7	3	3	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	145
	73	90	95	97	99	83	17	17	17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SE	121	33	12	4	3	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	175
	69	88	95	97	99	83	66	66	33	33	33	17	17	17	17	17	0	0	0	0	0	0	0	0	0	0
SSE	133	48	27	14	9	6	5	3	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	249
	54	73	84	89	93	95	97	99	99	100	100	67	50	17	0	0	0	0	0	0	0	0	0	0	0	0
S	180	59	29	14	9	4	2	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	298
	60	80	90	95	98	99	100	100	83	50	50	50	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 2.3-18 — {CCNPP 33 Feet Average Wind Direction Persistence Summary for Years 2000-2005}

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	Direction Persistence (Hours)/Percent																									
SECTOR	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**GT.24**	**TOTAL**
SSW	225	79	42	21	12	7	3	3	3	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	395
	57	77	87	93	96	97	98	99	99	100	100	83	50	17	17	17	17	0	0	0	0	0	0	0	0	0
SW	242	90	45	25	20	11	9	6	6	5	3	2	1	1	0	1	0	0	1	1	0	0	0	0	0	469
	52	71	81	86	90	92	94	96	97	98	99	99	99	99	100	100	83	83	83	83	17	17	17	17	17	0
WSW	226	69	31	15	8	5	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	356
	64	83	92	96	98	99	99	83	83	50	33	33	17	17	17	17	17	0	0	0	0	0	0	0	0	0
W	192	51	20	7	4	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	277
	69	88	95	98	99	83	83	67	50	17	17	17	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WNW	189	59	22	11	6	4	1	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	296
	64	84	91	95	97	98	99	99	100	83	50	50	50	50	33	33	33	33	17	17	17	0	0	0	0	0
NW	175	64	32	19	10	6	3	3	2	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	316
	55	76	86	91	95	96	98	98	99	99	83	83	66	66	50	33	17	17	17	17	17	17	17	17	17	0
NNW	154	47	19	11	5	2	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	242
	64	83	91	95	97	98	99	99	83	50	33	33	17	17	17	0	0	0	0	0	0	0	0	0	0	0
TOTAL	2675	877	406	200	119	71	37	30	20	13	8	6	3	3	1	2	1	0	1	1	0	0	0	0	1	4474

Table 2.3-19 — {CCNPP 197 Feet Wind Direction Persistence Summary for Year 2000}

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	Direction Persistence (Hours)/Percent																									
SECTOR	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**GT.24**	**TOTAL**
N	146	60	37	19	12	17	2	3	1	3	2	1	1	1	0	0	0	0	0	0	0	0	0	0	0	305
	48	68	80	86	90	95	96	97	97	98	99	99	100	100	0	0	0	0	0	0	0	0	0	0	0	
NNE	165	70	22	18	13	3	4	3	2	3	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	305
	54	77	84	90	94	95	97	98	98	99	100	100	100	100	100	0	0	0	0	0	0	0	0	0	0	
NE	141	53	25	8	4	2	0	0	0	1	0	0	0	1	0	2	0	0	0	0	0	0	0	0	0	237
	59	82	92	96	97	98	98	98	98	99	99	99	99	99	99	100	0	0	0	0	0	0	0	0	0	
ENE	115	42	15	12	2	5	3	3	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	199
	58	79	86	92	93	96	97	99	99	99	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
E	103	30	9	5	2	4	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	157
	66	85	90	94	95	97	99	99	99	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
ESE	77	21	9	1	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	112
	69	88	96	96	97	98	99	99	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
SE	96	29	21	5	2	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	154
	62	81	95	98	99	99	99	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
SSE	112	35	28	19	4	11	5	2	3	1	1	2	0	0	0	1	0	0	0	0	0	0	0	0	0	224
	50	66	78	87	88	93	96	96	98	98	99	100	100	100	100	100	0	0	0	0	0	0	0	0	0	
S	154	41	28	16	7	6	2	0	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	258
	60	76	86	93	95	98	98	98	100	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Table 2.3-19 — {CCNPP 197 Feet Wind Direction Persistence Summary for Year 2000}

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	Direction Persistence (Hours)/Percent																									
SECTOR	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**GT.24**	**TOTAL**
SSW	174	65	34	20	14	6	3	10	3	0	0	1	1	1	0	0	0	0	0	1	0	0	0	0	0	333
	52	72	82	88	92	94	95	98	99	99	99	99	99	100	100	100	100	100	100	100	0	0	0	0	0	
SW	167	85	36	16	11	11	11	4	5	1	1	2	4	0	0	0	1	0	0	0	1	0	0	0	0	356
	47	71	81	85	88	92	95	96	97	97	98	98	99	99	99	99	100	100	100	100	100	0	0	0	0	
WSW	158	49	28	18	8	4	1	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	270
	59	77	87	94	97	98	99	99	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
W	128	43	20	11	7	4	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	215
	60	80	89	94	97	99	100	100	100	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
WNW	163	64	34	19	9	5	3	1	1	0	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	302
	54	75	86	93	96	97	98	99	99	99	100	100	100	0	0	0	0	0	0	0	0	0	0	0	0	
NW	166	53	37	26	11	9	4	5	3	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	317
	52	69	81	89	92	95	97	98	99	99	99	100	100	0	0	0	0	0	0	0	0	0	0	0	0	
NNW	160	54	27	22	10	4	2	3	4	2	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	291
	55	74	83	90	94	95	96	97	98	99	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
TOTAL	2225	794	410	235	117	92	44	37	28	15	13	7	8	3	1	3	1	0	0	1	1	0	0	0	0	4035

Table 2.3-20 — {CCNPP 197 Feet Wind Direction Persistence Summary for Year 2001}

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	Direction Persistence (Hours)/Percent																									
SECTOR	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**GT.24**	**TOTAL**
N	133	62	39	18	16	6	6	1	2	2	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	286
	47	68	82	88	94	96	98	98	99	100	100	100	100	100	100	0	0	0	0	0	0	0	0	0	0	
NNE	149	52	29	17	9	6	4	4	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	271
	55	74	85	91	94	97	98	100	100	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
NE	136	34	20	9	4	3	2	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	210
	65	81	90	95	97	98	99	100	100	100	100	100	100	100	0	0	0	0	0	0	0	0	0	0	0	
ENE	122	32	17	7	1	4	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	185
	66	83	92	96	97	99	99	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
E	125	44	16	5	2	2	1	1	0	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	200
	63	85	93	95	96	97	98	98	98	99	100	100	0	0	0	0	0	0	0	0	0	0	0	0	0	
ESE	93	32	14	3	6	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	151
	62	83	92	94	98	99	99	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
SE	119	33	11	8	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	173
	69	88	94	99	99	99	99	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
SSE	118	43	35	27	15	6	5	5	1	1	1	1	0	2	0	0	0	0	0	0	1	0	0	0	0	261
	45	62	75	85	91	93	95	97	98	98	98	99	99	100	100	100	100	100	100	100	100	0	0	0	0	
S	176	51	33	19	9	12	4	3	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	308
	57	74	84	91	94	97	99	100	100	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Table 2.3-20 — {CCNPP 197 Feet Wind Direction Persistence Summary for Year 2001}

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	Direction Persistence (Hours)/Percent																									
SECTOR	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**GT.24**	**TOTAL**
SSW	174	72	43	35	17	13	5	3	4	3	0	2	0	0	1	0	0	0	0	0	0	0	0	0	0	372
	47	66	78	87	92	95	97	97	98	99	99	100	100	100	100	0	0	0	0	0	0	0	0	0	0	
SW	165	73	37	25	25	10	2	6	1	3	3	3	2	0	1	0	1	0	0	0	0	0	0	0	0	357
	46	67	77	84	91	94	94	96	96	97	98	99	99	99	100	100	100	0	0	0	0	0	0	0	0	
WSW	155	64	34	7	10	3	3	1	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	279
	56	78	91	93	97	98	99	99	99	100	100	100	100	100	100	0	0	0	0	0	0	0	0	0	0	
W	123	49	23	7	2	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	208
	59	83	94	97	98	98	99	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
WNW	139	39	23	10	2	7	0	2	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	225
	62	79	89	94	95	98	98	99	100	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
NW	178	55	32	18	13	8	6	2	0	4	2	1	0	1	0	1	0	1	1	0	0	0	0	0	0	323
	55	72	82	88	92	94	96	97	97	98	98	99	99	99	99	99	99	100	100	0	0	0	0	0	0	
NNW	136	64	18	24	9	8	12	5	2	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	281
	48	71	78	86	89	92	96	98	99	100	100	100	0	0	0	0	0	0	0	0	0	0	0	0	0	
TOTAL	2241	799	424	239	141	90	52	40	12	21	7	9	2	4	4	1	1	1	1	0	1	0	0	0	0	4090

Table 2.3-21 — {CCNPP 197 Feet Wind Direction Persistence Summary for Year 2002}

(Page 1 of 2)

	Direction Persistence (Hours)/Percent																									
SECTOR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	GT.24	TOTAL
N	125	61	42	30	14	7	5	1	4	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	292
	43	64	78	88	93	96	97	98	99	99	100	100	100	100	0	0	0	0	0	0	0	0	0	0	0	
NNE	149	62	30	18	13	11	5	3	5	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	299
	50	71	81	87	91	95	96	97	99	99	100	100	0	0	0	0	0	0	0	0	0	0	0	0	0	
NE	139	51	20	6	5	2	1	1	1	1	0	1	1	1	0	0	0	0	0	0	0	1	0	0	0	231
	60	82	91	94	96	97	97	97	98	98	98	99	99	100	100	100	100	100	100	100	100	100	0	0	0	
ENE	124	24	13	5	4	2	2	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	177
	70	84	91	94	96	97	98	99	99	99	99	100	0	0	0	0	0	0	0	0	0	0	0	0	0	
E	81	34	13	4	2	1	2	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	139
	58	83	92	95	96	97	99	99	99	99	99	100	0	0	0	0	0	0	0	0	0	0	0	0	0	
ESE	86	28	13	3	1	2	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	135
	64	84	94	96	97	99	99	99	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
SE	101	36	11	10	1	2	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	162
	62	85	91	98	98	99	99	99	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
SSE	94	50	26	17	11	9	5	3	2	5	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	226
	42	64	75	83	88	92	94	95	96	98	99	100	0	0	0	0	0	0	0	0	0	0	0	0	0	
S	126	57	39	21	10	9	1	3	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	269
	47	68	83	90	94	97	98	99	99	99	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Table 2.3-21 — {CCNPP 197 Feet Wind Direction Persistence Summary for Year 2002}
(Page 2 of 2)

	Direction Persistence (Hours)/Percent																								
SECTOR	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**GT.24**	**TOTAL**
SSW	153	78	53	26	15	8	5	1	5	2	0	2	0	1	0	0	0	0	0	0	0	0	0	0	0	349
	44	66	81	89	93	95	97	97	99	99	99	100	100	100	0	0	0	0	0	0	0	0	0	0	0	
SW	163	60	34	36	16	4	5	7	5	5	4	3	2	0	0	0	2	1	0	0	0	0	0	0	1	348
	47	64	74	84	89	90	91	93	95	96	97	98	99	99	99	99	99	100	100	100	100	100	100	100	100	
WSW	164	52	16	9	11	7	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	263
	62	82	88	92	96	98	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
W	126	33	22	11	2	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	197
	64	81	92	97	98	99	99	99	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
WNW	147	50	18	15	12	4	3	1	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	254
	58	78	85	91	95	97	98	98	99	99	99	99	100	100	0	0	0	0	0	0	0	0	0	0	0	
NW	145	57	30	14	13	7	7	1	1	2	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	280
	52	72	83	88	93	95	98	98	98	99	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
NNW	114	50	36	18	18	7	7	0	6	1	1	0	0	1	0	1	0	0	0	0	0	0	0	0	0	260
	44	63	77	84	91	93	96	96	98	99	99	99	99	100	100	100	0	0	0	0	0	0	0	0	0	
TOTAL	2037	783	416	243	148	83	52	25	34	20	14	11	4	5	0	1	2	1	0	0	0	1	0	0	1	3881

Table 2.3-22 — {CCNPP 197 Feet Wind Direction Persistence Summary for Year 2003}

(Page 1 of 2)

	Direction Persistence (Hours)/Percent																									
SECTOR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	GT.24	TOTAL
N	124	61	39	15	13	13	8	8	2	1	3	0	0	0	0	2	0	0	1	0	0	0	0	0	0	290
	43	64	77	82	87	91	94	97	98	98	99	99	99	99	99	100	100	100	100	0	0	0	0	0	0	
NNE	161	65	36	20	4	8	2	1	1	3	1	2	0	0	0	0	0	0	1	0	0	0	0	0	0	305
	53	74	86	92	94	96	97	97	98	99	99	100	100	100	100	100	100	100	100	0	0	0	0	0	0	
NE	137	50	22	8	5	3	3	3	1	4	2	1	1	0	1	0	0	0	1	0	0	0	0	0	0	242
	57	77	86	90	92	93	94	95	96	98	98	99	99	99	100	100	100	100	100	0	0	0	0	0	0	
ENE	138	34	12	4	4	1	6	0	1	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	202
	68	85	91	93	95	96	99	99	99	99	99	99	99	99	99	99	100	100	100	0	0	0	0	0	0	
E	99	26	14	13	0	2	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	156
	63	80	89	97	97	99	99	99	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
ESE	99	30	14	1	2	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	149
	66	87	96	97	98	99	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
SE	134	42	14	10	3	3	2	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	209
	64	84	91	96	97	99	100	100	100	100	100	100	0	0	0	0	0	0	0	0	0	0	0	0	0	
SSE	124	56	37	15	16	5	5	5	1	3	3	0	0	1	0	0	0	0	0	0	0	0	0	0	0	271
	46	66	80	86	92	93	95	97	97	99	100	100	100	100	0	0	0	0	0	0	0	0	0	0	0	
S	162	54	32	21	12	8	1	1	3	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	295
	55	73	84	91	95	98	98	99	100	100	100	100	100	100	0	0	0	0	0	0	0	0	0	0	0	

Table 2.3-22 — {CCNPP 197 Feet Wind Direction Persistence Summary for Year 2003}

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	Direction Persistence (Hours)/Percent																									
SECTOR	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**GT.24**	**TOTAL**
SSW	159	58	28	21	9	11	7	2	4	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	302
	53	72	81	88	91	95	97	98	99	99	100	100	0	0	0	0	0	0	0	0	0	0	0	0	0	
SW	177	75	22	26	6	7	7	9	3	3	2	1	0	1	1	0	0	0	0	0	0	0	0	0	0	340
	52	74	81	88	90	92	94	97	98	99	99	99	99	100	100	0	0	0	0	0	0	0	0	0	0	
WSW	146	48	23	12	4	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	239
	61	81	91	96	97	99	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
W	141	47	22	6	5	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	223
	63	84	94	97	99	100	100	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
WNW	145	65	22	17	4	4	2	0	4	0	1	0	2	1	0	0	0	0	0	0	0	0	0	0	0	267
	54	79	87	93	95	96	97	97	99	99	99	99	100	100	0	0	0	0	0	0	0	0	0	0	0	
NW	138	62	39	17	7	14	2	1	3	2	2	2	0	1	0	0	0	0	0	0	0	0	0	0	0	290
	48	69	82	88	91	96	96	97	98	98	99	100	100	100	0	0	0	0	0	0	0	0	0	0	0	
NNW	122	58	20	14	8	6	6	1	2	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	240
	51	75	83	89	93	95	98	98	99	99	100	100	100	0	0	0	0	0	0	0	0	0	0	0	0	
TOTAL	2206	831	396	220	102	91	56	32	26	18	16	8	4	5	2	2	1	0	4	0	0	0	0	0	0	4020

Table 2.3-23 — {CCNPP 197 Feet Wind Direction Persistence Summary for Year 2004}
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	Direction Persistence (Hours)/Percent																									
SECTOR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	GT.24	TOTAL
N	145	49	37	21	23	10	6	5	2	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	301
	48	64	77	84	91	95	97	98	99	99	99	100	100	0	0	0	0	0	0	0	0	0	0	0	0	
NNE	156	59	21	14	12	4	7	3	2	0	0	2	0	0	0	1	2	0	0	0	0	0	1	0	0	284
	55	76	83	88	92	94	96	97	98	98	98	99	99	99	99	99	100	100	100	100	100	100	100	0	0	
NE	133	44	23	16	3	0	1	0	0	0	1	1	0	0	0	0	0	0	0	1	0	0	0	0	0	223
	60	79	90	97	98	98	99	99	99	99	99	100	100	100	100	100	100	100	100	100	0	0	0	0	0	
ENE	129	37	17	11	5	4	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	205
	63	81	89	95	97	99	99	100	100	100	100	100	0	0	0	0	0	0	0	0	0	0	0	0	0	
E	115	30	9	12	3	1	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	173
	66	84	89	96	98	98	98	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
ESE	111	30	10	5	4	2	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	165
	67	85	92	95	97	98	99	99	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
SE	134	36	18	8	6	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	208
	64	82	90	94	97	98	99	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
SSE	131	46	36	20	9	7	6	1	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	263
	50	67	81	89	92	95	97	97	98	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	0	
S	159	62	35	11	14	8	2	3	1	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	297
	54	74	86	90	95	97	98	99	99	100	100	100	100	100	100	0	0	0	0	0	0	0	0	0	0	

Table 2.3-23 — {CCNPP 197 Feet Wind Direction Persistence Summary for Year 2004}

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	Direction Persistence (Hours)/Percent																									
SECTOR	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**GT.24**	**TOTAL**
SSW	192	77	52	25	11	8	7	6	3	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	384
	50	70	84	90	93	95	97	98	99	99	99	100	100	0	0	0	0	0	0	0	0	0	0	0	0	
SW	179	74	41	22	12	5	5	7	4	4	4	0	1	1	0	0	1	1	0	0	0	0	0	0	0	361
	50	70	81	88	91	92	94	96	97	98	99	99	99	99	99	99	100	100	0	0	0	0	0	0	0	
WSW	157	44	22	11	7	4	1	1	2	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	251
	63	80	89	93	96	98	98	98	99	100	100	100	100	100	100	100	100	100	100	0	0	0	0	0	0	
W	152	45	22	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	222
	68	89	99	99	100	100	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
WNW	157	50	21	8	9	2	0	0	1	0	1	1	1	0	0	0	0	0	1	0	0	0	0	0	0	252
	62	82	90	94	97	98	98	98	98	98	99	99	100	100	100	100	100	100	100	0	0	0	0	0	0	
NW	145	55	30	16	15	6	4	4	1	1	1	1	0	0	0	0	0	1	1	0	1	0	0	0	1	283
	51	71	81	87	92	94	96	97	98	98	98	99	99	99	99	99	99	99	99	99	100	100	100	100	100	
NNW	135	58	26	10	8	10	4	1	2	2	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	258
	52	75	85	89	92	96	97	98	98	99	99	100	100	0	0	0	0	0	0	0	0	0	0	0	0	
TOTAL	2330	796	420	211	142	73	47	38	22	14	7	9	5	1	1	1	3	2	3	1	1	0	1	1	1	4130

Table 2.3-24 — {CCNPP 197 Feet Wind Direction Persistence Summary for Year 2005}

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	Direction Persistence (Hours)/Percent																									
SECTOR	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**GT.24**	**TOTAL**
N	134	69	43	19	17	7	13	2	1	0	3	1	0	0	0	0	0	0	0	0	1	0	0	0	0	310
	43	65	79	85	91	93	97	98	98	98	99	100	100	100	100	100	100	100	100	100	100	0	0	0	0	
NNE	158	66	33	19	13	13	4	4	1	2	1	2	2	0	0	0	0	0	0	0	0	0	0	0	0	318
	50	70	81	87	91	95	96	97	98	98	99	99	100	0	0	0	0	0	0	0	0	0	0	0	0	
NE	147	46	17	11	4	6	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	235
	63	82	89	94	96	98	99	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
ENE	131	56	10	7	2	2	1	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	211
	62	89	93	97	98	99	99	100	100	100	100	100	100	100	0	0	0	0	0	0	0	0	0	0	0	
E	129	38	14	12	7	5	3	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	209
	62	80	87	92	96	98	100	100	100	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
ESE	115	39	14	3	4	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	176
	65	88	95	97	99	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
SE	143	48	19	7	3	0	0	1	2	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	225
	64	85	93	96	98	98	98	98	99	100	100	100	100	100	100	100	100	0	0	0	0	0	0	0	0	
SSE	143	59	35	15	14	7	5	2	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	284
	50	71	83	89	94	96	98	99	99	99	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	
S	154	45	29	16	11	10	3	4	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	275
	56	72	83	89	93	96	97	99	99	100	100	100	100	0	0	0	0	0	0	0	0	0	0	0	0	

Table 2.3-24 — {CCNPP 197 Feet Wind Direction Persistence Summary for Year 2005}

(Page 2 of 2)

	Direction Persistence (Hours)/Percent																								
SECTOR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	GT.24	TOTAL
SSW	152	65	38	18	12	7	3	2	1	2	0	0	1	1	2	0	0	0	0	0	0	0	0	0	0	304
	50	71	84	90	94	96	97	98	98	99	99	99	99	99	100	0	0	0	0	0	0	0	0	0	0	
SW	167	64	34	15	15	8	5	3	3	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	317
	53	73	84	88	93	96	97	98	99	100	100	100	0	0	0	0	0	0	0	0	0	0	0	0	0	
WSW	152	46	31	15	12	2	2	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	263
	58	75	87	93	97	98	99	100	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
W	133	48	19	6	0	4	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	212
	63	85	94	97	97	99	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
WNW	182	45	16	10	9	3	3	1	2	1	0	1	0	0	2	0	0	0	0	1	0	0	0	0	1	277
	66	82	88	91	95	96	97	97	98	98	98	99	99	99	99	99	99	99	99	100	100	100	100	100	100	
NW	161	50	30	19	11	5	5	2	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	285
	56	74	85	91	95	97	99	99	100	100	100	100	100	100	100	100	100	0	0	0	0	0	0	0	0	
NNW	144	40	24	12	11	5	2	4	2	1	4	0	0	0	0	1	0	0	0	0	0	0	0	0	0	250
	58	74	83	88	92	94	95	97	98	98	100	100	100	100	100	100	0	0	0	0	0	0	0	0	0	
TOTAL	2345	824	406	204	145	85	53	30	16	12	9	5	4	2	4	1	2	0	0	1	1	0	0	0	2	4151

Table 2.3-25 — {CCNPP 197 Feet Average Wind Direction Persistence Summary for Years 2000-2005}

(Page 1 of 2)

	Direction Persistence (Hours)/Percent																									
SECTOR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	GT.24	TOTAL
N	135	60	40	20	16	10	7	3	2	1	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	297
	45	66	79	86	91	94	97	98	98	99	99	100	100	83	50	33	33	33	33	17	17	0	0	0	0	0
NNE	156	62	29	18	11	8	4	3	2	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	297
	53	74	83	89	93	95	97	98	99	99	83	83	67	50	50	33	33	33	33	17	17	17	17	0	0	0
NE	139	46	21	10	4	3	2	1	0	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	230
	61	81	90	94	96	97	98	98	82	82	82	83	83	83	67	67	50	50	50	33	17	17	0	0	0	0
ENE	127	38	14	8	3	3	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	197
	65	84	90	95	96	98	99	100	83	83	83	67	33	33	17	17	17	17	17	0	0	0	0	0	0	0
E	109	34	13	9	3	3	2	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	172
	63	83	90	95	96	98	99	99	83	66	33	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ESE	97	30	12	3	3	2	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	148
	66	86	94	96	98	99	83	66	50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SE	121	37	16	8	3	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	189
	64	84	92	97	98	99	99	100	50	33	33	33	17	17	17	17	17	0	0	0	0	0	0	0	0	0
SSE	120	48	33	19	12	8	5	3	2	2	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	255
	47	66	79	87	91	94	96	97	98	99	99	100	83	83	67	67	50	50	50	50	50	33	33	33	17	0
S	155	52	33	17	11	9	2	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	284
	55	73	84	91	94	97	98	99	100	100	67	50	50	33	17	0	0	0	0	0	0	0	0	0	0	0

Table 2.3-25 — {CCNPP 197 Feet Average Wind Direction Persistence Summary for Years 2000-2005}
(Page 2 of 2)

	Direction Persistence (Hours)/Percent																									
SECTOR	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**GT.24**	**TOTAL**
SSW	167	69	41	24	13	9	5	4	3	2	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	341
	49	70	82	89	93	95	97	98	99	99	99	100	83	67	50	17	17	17	17	17	0	0	0	0	0	0
SW	170	72	34	23	14	8	6	6	4	3	2	2	2	0	0	0	1	0	0	0	0	0	0	0	0	347
	49	70	80	86	90	93	94	96	97	98	99	99	83	83	83	66	67	50	33	33	33	17	17	17	17	0
WSW	155	51	26	12	9	4	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	261
	60	79	89	94	97	98	99	66	66	33	33	33	33	33	33	17	17	17	17	0	0	0	0	0	0	0
W	134	44	21	7	3	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	213
	63	84	94	97	98	99	100	67	33	17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WNW	156	52	22	13	8	4	2	1	2	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	263
	59	79	88	93	96	97	98	98	99	99	83	83	83	67	33	33	33	33	33	17	17	17	17	17	17	0
NW	156	55	33	18	12	8	5	3	2	2	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	296
	52	71	82	89	93	95	97	98	98	99	99	83	83	66	50	50	50	33	33	17	17	17	17	17	17	0
NNW	135	54	25	17	11	7	6	2	3	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	263
	51	72	82	88	92	94	96	97	98	99	100	83	67	33	33	33	0	0	0	0	0	0	0	0	0	0
TOTAL	2231	805	412	225	133	86	51	34	23	17	11	8	5	3	2	2	2	1	1	1	1	0	0	0	1	4051

Table 2.3-26 — {CCNPP Monthly Mean Temperatures (2000-2005)}

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
° F	34.3	38.1	45.1	55.0	63.4	71.6	75.1	75.0	69.0	58.5	51.6	38.4	56.3
° C	1.3	3.4	7.3	12.8	17.4	22.0	23.9	23.9	20.6	14.7	10.9	3.6	13.5

Table 2.3-27 — {CCNPP Highest Monthly Mean Maximum Temperatures (2000 - 2005)}

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
° F	40.9	41.6	52.0	57.1	69.4	72.8	78.3	77.5	72.1	60.4	59.5	45.0	78.3
° C	4.9	5.3	11.1	13.9	20.8	22.7	25.7	25.3	22.3	15.8	15.3	7.2	25.7

Table 2.3-28 — {CCNPP Lowest Monthly Mean Minimum Temperatures (2000-2005)}

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
° F	29.5	33.1	40.3	53.2	58.8	69.1	72.0	72.4	65.9	57.2	45.4	31.4	29.5
° C	-1.4	0.6	4.6	11.8	14.9	20.6	22.2	22.4	18.8	14.0	7.4	-0.3	-1.4

Table 2.3-29 — {CCNPP Monthly Mean Daily Maximum Temperatures (2000-2005)}

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
° F	40.6	45.4	52.7	63.3	70.8	78.8	81.8	81.4	75.2	65.3	58.9	44.7	81.8
° C	4.8	7.4	11.5	17.4	21.6	26.0	27.7	27.4	24.0	18.5	14.9	7.1	27.7

Table 2.3-30 — {CCNPP Monthly Mean Daily Minimum Temperatures (2000-2005)}

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
° F	28.5	31.7	38.1	47.4	56.3	64.8	68.7	69.3	63.1	51.7	44.5	32.2	28.5
° C	-1.9	-0.2	3.4	8.6	13.5	18.2	20.4	20.7	17.3	10.9	6.9	0.1	-1.9

Table 2.3-31 — {CCNPP Maximum Hourly Temperatures (2000-2005)}

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
° F	77.2	75.6	84.0	90.7	89.8	91.4	96.3	93.9	87.6	86.0	78.6	72.9	96.3
° C	25.1	24.2	28.9	32.6	32.1	33.0	35.7	34.4	30.9	30.0	25.9	22.7	35.7

Table 2.3-32 — {CCNPP Minimum Hourly Temperatures (2000-2005)}

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
° F	9.2	15.0	16.2	29.4	39.9	51.8	55.6	55.0	43.3	32.7	22.0	8.5	8.5
° C	-12.7	-9.4	-8.8	-1.4	4.4	11.0	13.1	12.8	6.3	0.4	-5.6	-13.1	-13.1

Table 2.3-33 — {CCNPP Number of Hourly Temperature Values Greater Than or Less Than Indicated Value (2000-2005)}

Value	Number of Hours of Occurrence	Percent Frequency of Occurrence
95.0° F	3	0.006
90.0° F	137	0.262
32.0° F	5062	9.663
00.0° F	0	0.000

Table 2.3-34 — {Monthly Mean Temperatures (1971-2000) at Sites Around CCNPP}

SITE		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
Baltimore/Washington International Airport	° F	32.3	35.5	43.7	53.2	62.9	71.8	76.5	74.5	67.4	55.4	45.5	36.7	54.6
	° C	0.2	1.9	6.5	11.8	17.2	22.1	24.7	23.6	19.7	13.0	7.5	2.6	12.6
Annapolis, MD	° F	32.8	35.1	43.6	53.6	63.6	72.4	77.5	75.6	68.3	56.6	46.0	37.7	55.2
	° C	0.4	1.7	6.4	12.0	17.6	22.4	25.3	24.2	20.2	13.7	7.8	3.2	12.9
Cambridge, MD	° F	36.1	39.0	46.8	56.2	65.7	74.4	78.9	77.1	70.8	59.7	50.2	41.0	58.0
	° C	2.3	3.9	8.2	13.4	18.7	23.6	26.1	25.1	21.6	15.4	10.1	5.0	14.4
Princess Anne, MD	° F	36.3	38.5	46.0	54.4	63.5	71.9	76.6	74.8	68.6	57.5	48.7	40.3	56.4
	° C	2.4	3.6	7.8	12.4	17.5	22.2	24.8	23.8	20.3	14.2	9.3	4.6	13.6
Patuxent River NAS	° F	36.1	38.2	45.9	55.3	64.8	73.2	78.1	76.8	70.6	59.4	49.9	40.8	57.4
	° C	2.3	3.4	7.7	12.9	18.2	22.9	25.6	24.9	21.4	15.2	9.9	4.9	14.1
Mechanicsville, MD	° F	34.9	37.9	46.2	55.3	63.9	72.0	76.6	74.8	68.3	56.7	47.9	39.5	56.2
	° C	1.6	3.3	7.9	12.9	17.7	22.2	24.8	23.8	20.2	13.7	8.8	4.2	13.4

Table 2.3-35 — {Monthly Mean Maximum Temperatures (1971-2000) at Sites Around CCNPP}

SITE		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
Baltimore/Washington International Airport	° F	41.2	44.8	53.9	64.5	73.9	82.7	87.2	85.1	78.2	67.0	56.3	46.0	65.1
	° C	5.1	7.1	12.2	18.1	23.3	28.2	30.7	29.5	25.7	19.4	13.5	7.8	18.4
Annapolis, MD	° F	41.8	45.0	54.3	65.1	74.8	83.2	87.7	85.3	78.0	66.9	55.7	46.8	65.4
	° C	5.4	7.2	12.4	18.4	23.8	28.4	30.9	29.6	25.6	19.4	13.2	8.2	18.6
Cambridge, MD	° F	45.0	48.6	57.0	67.7	76.9	85.3	89.4	87.3	81.1	70.5	60.2	50.1	68.3
	° C	7.2	9.2	13.9	19.8	24.9	29.6	31.9	30.7	27.3	21.4	15.7	10.1	20.2
Princess Anne, MD	° F	46.6	49.1	57.6	67.5	76.2	84.0	88.4	86.4	81.0	70.6	60.3	51.0	68.2
	° C	8.1	9.5	14.2	19.7	24.6	28.9	31.3	30.2	27.2	21.4	15.7	10.6	20.1
Patuxent River NAS	° F	43.9	46.5	54.8	64.8	73.6	81.5	86.1	84.8	78.8	68.3	58.5	48.7	65.9
	° C	6.6	8.1	12.7	18.2	23.1	27.5	30.1	29.3	26.0	20.2	14.7	9.3	18.8
Mechanicsville, MD	° F	43.5	47.2	56.7	66.8	74.3	82.0	86.1	84.0	77.4	66.3	57.8	48.4	65.9
	° C	6.4	8.4	13.7	19.3	23.5	27.8	30.1	28.9	25.2	19.1	14.3	9.1	18.8

Table 2.3-36 — {Monthly Mean Minimum Temperatures (1971-2000) at Sites Around CCNPP}

SITE		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
Baltimore/Washington International Airport	° F	23.5	26.1	33.6	42.0	51.8	60.8	65.8	63.9	56.6	43.7	34.7	27.3	44.2
	° C	-4.7	-3.3	0.9	5.6	11.0	16.0	18.8	17.7	13.7	6.5	1.5	-2.6	6.8
Annapolis, MD	° F	23.8	25.1	32.8	42.1	52.3	61.6	67.3	65.8	58.5	46.3	36.2	28.6	45.0
	° C	-4.6	-3.8	0.4	5.6	11.3	16.4	19.6	18.8	14.7	7.9	2.3	-1.9	7.2
Cambridge, MD	° F	27.2	29.3	36.5	44.7	54.5	63.5	68.3	66.9	60.5	48.8	40.1	31.8	47.7
	° C	-2.7	-1.5	2.5	7.1	12.5	17.5	20.2	19.4	15.8	9.3	4.5	-0.1	8.7
Princess Anne, MD	° F	26.0	27.8	34.3	41.2	50.8	59.8	64.7	63.1	56.2	44.4	37.1	29.5	44.6
	° C	-3.3	-2.3	1.3	5.1	10.4	15.4	18.2	17.3	13.4	6.9	2.8	-1.4	7.0
Patuxent River NAS	° F	28.3	29.9	36.9	45.7	55.9	64.8	70.0	68.7	62.4	50.4	41.2	32.8	48.9
	° C	-2.1	-1.2	2.7	7.6	13.3	18.2	21.1	20.4	16.9	10.2	5.1	0.4	9.4
Mechanicsville, MD	° F	26.3	28.5	35.6	43.7	53.4	61.9	67.0	65.5	59.1	47.0	38.0	30.6	46.4
	° C	-3.2	-1.9	2.0	6.5	11.9	16.6	19.4	18.6	15.1	8.3	3.3	-0.8	8.0

Table 2.3-37 — {Monthly Mean Wet Bulb Temperatures (1983-2000) at Sites Around CCNPP}

SITE		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
Baltimore/Washington International Airport	° F	30.9	33.0	38.6	47.9	57.1	66.0	70.0	68.5	62.3	51.9	40.3	32.0	49.9
	° C	-0.6	0.6	3.7	8.8	13.9	18.9	21.1	20.3	16.8	11.1	4.6	0.0	9.9
Norfolk, VA	° F	37.5	39.3	44.1	52.0	60.3	68.4	69.0	71.7	63.1	57.2	48.6	40.6	54.3
	° C	3.1	4.1	6.7	11.1	15.7	20.2	20.6	22.1	17.3	14.0	9.2	4.8	12.4
Richmond, VA	° F	34.3	36.7	41.9	50.7	59.4	67.3	71.5	66.2	63.8	53.8	44.9	36.7	52.3
	° C	1.3	2.6	5.5	10.4	15.2	19.6	21.9	19.0	17.7	12.1	7.2	2.6	11.3

Table 2.3-38 — {Monthly Mean Dew Point Temperatures (1983-2000) at Sites Around CCNPP}

SITE		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
Baltimore/Washington International Airport	° F	23.6	25.1	30.1	40.3	51.4	61.5	65.9	64.7	58.4	47.1	34.4	25.4	44.0
	° C	-4.7	-3.8	-1.1	4.6	10.8	16.4	18.8	18.2	14.7	8.4	1.3	-3.7	6.7
Norfolk, VA	° F	31.0	32.5	37.2	45.7	55.1	64.5	65.9	68.7	59.8	52.5	43.0	34.5	49.2
	° C	-0.6	0.3	2.9	7.6	12.8	18.1	18.8	20.4	15.4	11.4	6.1	1.4	9.6
Richmond, VA	° F	27.3	28.9	33.9	43.3	54.3	63.2	68.0	63.2	60.1	49.0	38.7	29.9	46.7
	° C	-2.6	-1.7	1.1	6.3	12.4	17.3	20.0	17.3	15.6	9.4	3.7	-1.2	8.2

Table 2.3-39 — {Number of Days with Maximum Hourly Temperature Value Greater Than or Equal to 90° F at Sites Around CCNPP}

SITE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
Baltimore/Washington International Airport	0.0	0.0	0.0	0.4	1.4	5.8	11.3	8.0	3.4	0.0	0.0	0.0	30.3
Norfolk, VA	0.0	0.0	0.0	0.4	1.5	5.9	10.9	8.6	2.8	0.1	0.0	0.0	30.2
Richmond, VA	0.0	0.0	0.1	0.8	2.3	8.7	13.8	11.0	4.1	0.3	0.0	0.0	41.1

Table 2.3-40 — {Number of Days with Maximum Hourly Temperature Value Less Than or Equal to 32° F at Sites Around CCNPP}

SITE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
Baltimore/Washington International Airport	7.2	4.2	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	3.6	15.5
Norfolk, VA	3.3	1.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	5.7
Richmond, VA	4.3	1.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	7.6

Table 2.3-41 — {Number of Days with Minimum Hourly Temperature Value Less Than or Equal to 32° F at Sites Around CCNPP}

SITE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
Baltimore/Washington International Airport	25.3	21.1	14.0	3.4	*	0.0	0.0	0.0	0.0	1.9	10.2	21.1	97.0
Norfolk, VA	18.0	15.5	6.0	0.4	0.0	0.0	0.0	0.0	0.0	0.2	3.0	13.1	56.2
Richmond, VA	23.0	19.5	10.8	2.3	0.1	0.0	0.0	0.0	0.0	2.1	9.4	19.2	86.4

Note:
* Denotes value is between 0.00 and 0.05

Table 2.3-42 — {Number of Days with Minimum Hourly Temperature Value Less Than or Equal to 0° F at Sites Around CCNPP}

SITE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
Baltimore/Washington International Airport	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	*	0.6
Norfolk, VA	*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Richmond, VA	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4

Note:
* Denotes value is between 0.00 and 0.05

Table 2.3-43 — {Monthly Mean Relative Humidity at Sites Around CCNPP}

SITE		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
Baltimore/Washington International Airport	%	63	61	59	59	66	68	69	71	71	70	66	66	66
Norfolk, VA	%	66	66	65	63	69	71	73	75	74	72	68	67	69
Richmond, VA	%	68	66	63	61	70	72	75	77	77	74	69	69	70

Table 2.3-44 — {CCNPP Monthly and Annual Precipitation (2000-2005)}

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
in	1.98	1.53	3.25	3.73	3.64	2.39	4.53	2.59	3.13	2.78	2.92	2.61	35.06
mm	50.29	38.86	82.55	94.74	92.46	60.71	115.06	65.79	79.50	70.61	74.17	66.29	890.52

Table 2.3-45 — {CCNPP Monthly and Annual Percent Frequency of Precipitation Occurrence (2000-2005)}

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
5.19	4.93	6.41	7.87	6.17	4.30	5.13	4.57	4.26	6.32	5.30	6.46	5.58

Table 2.3-46 — {CCNPP Hourly Rainfall Rate Distribution (2000-2005)}

Rainfall Rate in/hr (mm/hr)	0.0 (0.0)	0.0-0.1 (0.0-2.5)	0.1-0.2 (2.5-5.1)	0.2-0.3 (5.1-7.6)	0.3-0.4 (7.6-10.2)	0.4-0.5 (10.2-12.7)	0.5-0.6 (12.7-15.2)	0.6-0.7 (15.2-17.8)	0.7-0.8 (17.8-20.3)	0.8-0.9 (20.3-22.9)	0.9-1.0 (22.9-25.4)	1.0-2.0 (25.4-50.8)	2.0-3.0 (50.8-76.2)	Missing Data
Number of hours	48781	2374	306	73	87	18	10	9	6	1	1	2	1	939

Table 2.3-47 — {CCNPP Measured Extreme Precipitation Hourly Values (2000-2005)}

Rainfall Amount (in (mm))	**2.2 (55.9)**	**1.59 (40.39)**	**1.57 (39.88)**
Date Occurred	4/15/2003	5/21/2001	6/30/2005

Table 2.3-48 — {Mean Monthly and Annual Precipitation (1971-2000) At Sites Around CCNPP}

SITE		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
Baltimore/Washington International Airport	in	3.47	3.02	3.93	3.00	3.89	3.43	3.85	3.74	3.98	3.16	3.12	3.35	41.94
	mm	88.14	76.71	99.82	76.20	98.81	87.12	97.79	95.00	101.09	80.26	79.25	85.09	1065.28
Annapolis, MD	in	3.49	2.95	4.17	3.34	4.42	3.56	3.98	4.04	4.25	3.56	3.33	3.69	44.78
	mm	88.65	74.93	105.92	84.84	112.27	90.42	101.09	102.62	107.95	90.42	84.58	93.73	1137.41
Cambridge, MD	in	4.11	3.13	4.44	3.22	4.16	3.23	4.32	4.59	3.87	3.07	3.43	3.65	45.22
	mm	104.39	79.50	112.78	81.79	105.66	82.04	109.73	116.59	98.30	77.98	87.12	92.71	1148.59
Princess Anne, MD	in	3.83	2.94	4.24	3.23	3.41	3.13	4.27	4.84	3.92	3.31	3.16	3.14	43.42
	mm	97.28	74.68	107.70	82.04	86.61	79.50	108.46	122.94	99.57	84.07	80.26	79.76	1102.87
Patuxent River NAS	in	3.63	3.24	4.60	3.19	4.23	3.75	3.81	4.00	3.82	3.19	2.99	3.24	43.69
	mm	92.20	82.30	116.84	81.03	107.44	95.25	96.77	101.60	97.03	81.03	75.95	82.30	1109.73
Mechanicsville, MD	in	3.99	3.37	4.63	3.49	4.22	4.27	4.48	3.94	4.38	3.92	3.43	3.40	47.52
	mm	101.35	85.60	117.60	88.65	107.19	108.46	113.79	100.08	111.25	99.57	87.12	86.36	1207.01

Table 2.3-49 — {Mean Monthly and Annual Snowfall (1961-1990)At Sites Around CCNPP}

SITE		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
Baltimore/Washington International Airport	in	7.0	6.4	2.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.6	1.7	18.2
	mm	177.80	162.56	60.96	2.54	0.00	0.00	0.00	0.00	0.00	0.00	15.24	43.18	462.28
Norfolk, VA	in	2.6	3.8	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	8.1
	mm	66.04	96.52	33.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.16	205.74
Richmond, VA	in	4.3	4.8	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	1.6	12.4
	mm	109.22	121.92	35.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.62	40.64	314.96

Table 2.3-50 — {Monthly Mean Number of Days with Precipitation (1961-1990) At Sites Around CCNPP}

SITE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
Baltimore/Washington International Airport	10.2	9.4	10.0	10.5	10.9	9.2	9.6	9.4	7.2	7.4	9.0	9.2	112.0
Norfolk, VA	10.7	10.3	10.4	9.8	9.9	9.7	11.1	10.1	7.7	7.4	7.7	9.5	114.3
Richmond, VA	10.4	9.4	10.2	9.0	10.7	9.6	10.4	9.5	7.6	7.0	8.0	9.1	110.9

Table 2.3-51 — {Monthly Mean Number of Days with Heavy Fog (1971-2000) At Sites Around CCNPP}

SITE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
Baltimore/Washington International Airport	3.1	3.2	2.5	1.8	1.6	0.9	0.8	1.0	1.3	2.5	2.6	3.1	24.4
Norfolk, VA	2.1	2.5	2.0	1.5	1.8	1.0	0.5	1.0	1.2	2.1	1.9	2.1	19.7
Richmond, VA	2.7	2.1	1.7	1.6	1.8	1.5	2.0	2.4	2.9	3.3	2.3	2.8	27.1

Note:
BWI period 1949-2002, Norfolk period 1948-2002, Richmond period 1928-2002

Table 2.3-52 — {CCNPP 33 ft (10m) Annual Stability Persistence Summary for Year 2000}

	STABILITY PERSISTENCE (HOURS)/PERCENT																									
STABILITY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	GT.24	TOTAL
A	113	62	35	39	28	26	19	8	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	334
	34	52	63	75	83	91	96	99	100	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
B	302	49	11	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	364
	83	96	99	100	100	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
C	300	55	12	3	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	371
	81	96	99	100	100	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
D	381	198	68	44	27	16	3	8	9	8	11	7	8	5	7	7	4	4	1	4	0	1	2	3	9	835
	46	69	77	83	86	88	88	89	90	91	93	93	94	95	96	97	97	98	98	98	98	98	99	99	100	
E	273	133	70	47	32	30	23	20	11	19	8	11	6	5	1	3	0	1	0	0	0	0	0	0	0	693
	39	59	69	75	80	84	88	91	92	95	96	98	99	99	99	100	100	100	0	0	0	0	0	0	0	
F	204	73	44	17	13	11	4	2	3	0	2	0	1	1	0	0	0	0	0	0	0	0	0	0	0	375
	54	74	86	90	94	97	98	98	99	99	99	99	100	100	0	0	0	0	0	0	0	0	0	0	0	
G	58	27	21	12	9	14	3	4	3	7	2	1	2	3	2	0	0	0	0	0	0	0	0	0	0	168
	35	51	63	70	76	84	86	88	90	94	95	96	97	99	100	0	0	0	0	0	0	0	0	0	0	
TOTAL	1631	597	261	163	109	99	52	42	29	35	23	19	17	14	10	10	4	5	1	4	0	1	2	3	9	3140

Table 2.3-53 — {CCNPP 33 ft (10m) Annual Stability Persistence Summary for Year 2001}

	STABILITY PERSISTENCE (HOURS)/PERCENT																									
STABILITY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	GT.24	TOTAL
A	129	65	34	29	40	34	32	20	7	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	392
	33	49	58	66	76	84	93	98	99	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
B	305	46	10	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	363
	84	97	99	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
C	288	47	10	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	347
	83	97	99	100	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
D	373	193	81	37	23	18	12	8	12	5	7	8	5	3	7	2	4	2	4	4	0	2	0	0	5	815
	46	69	79	84	87	89	90	91	93	93	94	95	96	96	97	97	98	98	99	99	99	99	99	99	100	
E	310	130	78	48	36	28	15	12	13	9	7	6	8	7	2	3	0	0	0	0	0	0	0	0	0	712
	44	62	73	79	85	88	91	92	94	95	96	97	98	99	100	100	0	0	0	0	0	0	0	0	0	
F	262	102	39	33	15	14	7	4	2	2	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	482
	54	76	84	90	94	96	98	99	99	100	100	100	100	0	0	0	0	0	0	0	0	0	0	0	0	
G	79	35	23	19	11	7	9	5	4	6	4	3	2	1	1	0	0	0	0	0	0	0	0	0	0	209
	38	55	66	75	80	83	88	90	92	95	97	98	99	100	100	0	0	0	0	0	0	0	0	0	0	
TOTAL	1746	618	275	169	126	101	75	49	38	24	19	17	16	11	10	5	4	2	4	4	0	2	0	0	5	3320

Table 2.3-54 — {CCNPP 33 ft (10m) Annual Stability Persistence Summary for Year 2002}

	STABILITY PERSISTENCE (HOURS)/PERCENT																									
STABILITY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	GT.24	TOTAL
A	101	53	36	40	25	26	34	12	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	332
	30	46	57	69	77	85	95	98	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
B	275	47	8	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	331
	83	97	100	100	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
C	264	62	8	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	336
	79	97	99	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
D	348	186	99	32	26	17	16	10	9	7	7	3	5	6	1	3	3	2	1	3	1	1	1	0	13	800
	44	67	79	83	86	89	91	92	93	94	95	95	96	96	97	97	97	98	98	98	98	98	98	98	100	
E	291	126	61	47	42	28	22	28	12	8	9	12	8	3	4	4	0	0	0	0	0	1	0	0	0	706
	41	59	68	74	80	84	87	91	93	94	95	97	98	99	99	100	100	100	100	100	100	100	0	0	0	
F	217	84	40	34	25	8	7	0	0	3	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	420
	52	72	81	89	95	97	99	99	99	100	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
G	75	32	26	14	10	8	5	4	2	4	2	0	0	1	0	0	0	0	0	0	0	0	0	0	0	183
	41	58	73	80	86	90	93	95	96	98	99	99	99	100	0	0	0	0	0	0	0	0	0	0	0	
TOTAL	1571	590	278	169	129	87	84	54	28	22	20	15	13	10	5	7	3	2	1	3	1	2	1	0	13	3108

Table 2.3-55 — {CCNPP 33 ft (10m) Annual Stability Persistence Summary for Year 2003}

	STABILITY PERSISTENCE (HOURS)/PERCENT																									
STABILITY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	GT.24	TOTAL
A	100	50	26	29	25	12	6	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	251
	40	60	70	82	92	96	99	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
B	207	47	15	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	272
	76	93	99	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
C	287	49	10	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	348
	82	97	99	100	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
D	314	190	101	44	36	27	19	12	14	3	4	8	2	3	3	7	7	2	1	3	1	1	4	0	10	816
	38	62	74	80	84	87	90	91	93	93	94	95	95	95	96	96	97	98	98	98	98	98	99	99	100	
E	285	140	69	42	48	31	17	20	11	11	11	14	6	5	3	7	0	1	0	1	0	0	0	0	0	722
	39	59	68	74	81	85	88	90	92	93	95	97	98	98	99	100	100	100	100	100	0	0	0	0	0	
F	198	85	58	23	13	8	6	3	1	3	3	1	1	0	0	0	0	0	0	0	0	0	0	0	0	403
	49	70	85	90	94	96	97	98	98	99	100	100	100	0	0	0	0	0	0	0	0	0	0	0	0	
G	73	31	17	16	12	9	4	2	2	4	4	2	1	1	1	0	0	0	0	0	0	0	0	0	0	179
	41	58	68	77	83	88	91	92	93	95	97	98	99	99	100	0	0	0	0	0	0	0	0	0	0	
TOTAL	1464	592	296	158	135	87	52	40	28	21	22	25	10	9	7	14	7	3	1	4	1	1	4	0	10	2991

Table 2.3-56 — {CCNPP 33 ft (10m) Annual Stability Persistence Summary for Year 2004}

	STABILITY PERSISTENCE (HOURS)/PERCENT																									
STABILITY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	GT.24	TOTAL
A	106	46	35	22	25	24	21	5	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	285
	37	53	66	73	82	91	98	100	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
B	226	63	7	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	298
	76	97	99	100	100	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
C	284	51	9	3	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	348
	82	96	99	100	100	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
D	289	191	103	52	30	24	18	28	10	13	12	6	5	3	7	2	5	4	2	1	2	3	0	3	12	825
	35	58	71	77	81	84	86	89	90	92	93	94	95	95	96	96	97	97	97	98	98	98	98	99	100	
E	267	103	91	56	33	35	25	23	11	10	10	8	6	5	2	0	0	0	0	0	0	0	0	0	0	685
	39	54	67	75	80	85	89	92	94	95	97	98	99	100	100	0	0	0	0	0	0	0	0	0	0	
F	196	81	44	28	16	7	1	2	4	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	381
	51	73	84	92	96	98	98	98	99	100	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
G	52	34	11	14	10	3	6	5	1	2	4	0	4	2	1	0	0	0	0	0	0	0	0	0	0	149
	35	58	65	74	81	83	87	91	91	93	95	95	98	99	100	0	0	0	0	0	0	0	0	0	0	
TOTAL	1420	569	300	176	114	95	71	63	27	26	27	14	15	10	10	2	5	4	2	1	2	3	0	3	12	2971

Table 2.3-57 — {CCNPP33 ft (10m) Annual Stability Persistence Summary for Year 2005}

	STABILITY PERSISTENCE (HOURS)/PERCENT																									
STABILITY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	GT.24	TOTAL
A	101	42	30	13	18	20	21	27	11	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	285
	35	50	61	65	72	79	86	95	99	100	100	100	0	0	0	0	0	0	0	0	0	0	0	0	0	
B	215	47	8	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	272
	79	96	99	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
C	273	54	15	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	343
	80	95	100	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
D	294	159	109	48	36	27	19	11	14	8	8	5	6	5	2	6	3	4	8	4	1	0	0	3	7	787
	37	58	71	78	82	86	88	89	91	92	93	94	95	95	95	96	97	97	98	99	99	99	99	99	100	
E	309	98	65	52	37	26	20	16	8	11	5	14	2	6	5	0	1	0	0	0	0	0	0	0	0	675
	46	60	70	78	83	87	90	92	93	95	96	98	98	99	100	100	100	0	0	0	0	0	0	0	0	
F	203	86	44	32	13	10	8	4	2	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	405
	50	71	82	90	93	96	98	99	99	100	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
G	70	19	21	20	4	12	9	6	1	1	5	6	2	4	1	0	0	0	0	0	0	0	0	0	0	181
	39	49	61	72	74	81	86	89	90	90	93	96	97	99	100	0	0	0	0	0	0	0	0	0	0	
TOTAL	1465	505	292	168	108	95	77	64	36	23	19	26	10	15	8	6	4	4	8	4	1	0	0	3	7	2948

Table 2.3-58 — {CCNPP 33 ft (10m) Average Annual Stability Persistence Summary for Years 2000-2005}

	STABILITY PERSISTENCE (HOURS)/PERCENT																									
STABILITY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	GT.24	TOTAL
A	108	53	33	29	27	24	22	13	5	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	313
	35	52	63	72	80	88	95	98	83	50	17	17	0	0	0	0	0	0	0	0	0	0	0	0	0	0
B	255	50	10	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	317
	80	96	99	100	50	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C	283	53	11	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	349
	81	96	99	100	67	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D	333	186	94	43	30	22	15	13	11	7	8	6	5	4	5	5	4	3	3	3	1	1	1	2	9	813
	41	64	75	81	84	87	89	90	92	93	94	94	95	95	96	97	97	98	98	98	98	98	99	99	100	0
E	289	122	72	49	38	30	20	20	11	11	8	11	6	5	3	3	0	0	0	0	0	0	0	0	0	699
	41	59	69	76	82	86	89	91	93	95	96	98	98	99	100	83	67	50	33	33	17	17	0	0	0	0
F	213	85	45	28	16	10	6	3	2	2	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	411
	52	73	84	90	94	97	98	99	99	100	100	50	50	17	0	0	0	0	0	0	0	0	0	0	0	0
G	68	30	20	16	9	9	6	4	2	4	4	2	2	2	1	0	0	0	0	0	0	0	0	0	0	178
	38	55	66	75	80	85	89	91	92	94	96	97	98	99	83	0	0	0	0	0	0	0	0	0	0	0
TOTAL	1550	579	284	167	120	94	69	52	31	25	22	19	14	12	8	7	5	3	3	3	1	2	1	2	9	3080

Table 2.3-59 — {CCNPP 197 ft (60m) Annual Stability Persistence Summary for Year 2000}

	STABILITY PERSISTENCE (HOURS)/PERCENT																									
STABILITY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	GT.24	TOTAL
A	113	62	36	39	28	26	19	8	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	335
	34	52	63	75	83	91	96	99	100	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
B	304	49	11	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	366
	83	96	99	100	100	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
C	300	55	12	3	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	371
	81	96	99	100	100	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
D	383	197	68	42	26	16	3	9	9	8	11	7	8	5	7	7	4	4	1	4	0	1	2	3	9	834
	46	70	78	83	86	88	88	89	90	91	93	93	94	95	96	97	97	98	98	98	98	98	99	99	100	
E	273	131	71	45	30	30	23	20	11	19	8	11	6	5	2	3	0	1	0	0	0	0	0	0	0	689
	40	59	69	75	80	84	88	90	92	95	96	98	98	99	99	100	100	100	0	0	0	0	0	0	0	
F	204	73	44	17	13	11	4	2	3	0	2	0	1	1	0	0	0	0	0	0	0	0	0	0	0	375
	54	74	86	90	94	97	98	98	99	99	99	99	100	100	0	0	0	0	0	0	0	0	0	0	0	
G	57	27	21	12	9	14	3	4	3	7	2	1	2	3	2	0	0	0	0	0	0	0	0	0	0	167
	34	50	63	70	75	84	86	88	90	94	95	96	97	99	100	0	0	0	0	0	0	0	0	0	0	
TOTAL	1634	594	263	159	106	99	52	43	29	35	23	19	17	14	11	10	4	5	1	4	0	1	2	3	9	3137

Table 2.3-60 — {CCNPP 197 ft (60m) Annual Stability Persistence Summary for Year 2001}

	STABILITY PERSISTENCE (HOURS)/PERCENT																									
STABILITY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	GT.24	TOTAL
A	130	65	34	29	40	34	32	20	7	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	393
	33	50	58	66	76	84	93	98	99	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
B	305	46	10	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	363
	84	97	99	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
C	288	47	10	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	347
	83	97	99	100	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
D	375	194	80	37	23	18	12	8	12	5	7	8	5	3	7	2	4	2	4	4	0	2	0	0	5	817
	46	70	79	84	87	89	90	91	93	94	94	95	96	96	97	97	98	98	99	99	99	99	99	99	100	
E	310	131	78	48	36	28	15	12	13	9	7	6	8	8	2	3	0	0	0	0	0	0	0	0	0	714
	43	62	73	79	84	88	90	92	94	95	96	97	98	99	100	100	0	0	0	0	0	0	0	0	0	
F	262	102	39	33	15	14	7	4	2	2	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	482
	54	76	84	90	94	96	98	99	99	100	100	100	100	0	0	0	0	0	0	0	0	0	0	0	0	
G	77	36	24	19	11	7	9	5	5	6	4	2	2	1	1	0	0	0	0	0	0	0	0	0	0	209
	37	54	66	75	80	83	88	90	92	95	97	98	99	100	100	0	0	0	0	0	0	0	0	0	0	
TOTAL	1747	621	275	169	126	101	75	49	39	24	19	16	16	12	10	5	4	2	4	4	0	2	0	0	5	3325

Table 2.3-61 — {CCNPP 197 ft (60m) Annual Stability Persistence Summary for Year 2002}

	STABILITY PERSISTENCE (HOURS)/PERCENT																									
STABILITY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	GT.24	TOTAL
A	100	53	36	40	27	27	33	14	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	335
	30	46	56	68	76	84	94	99	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
B	281	47	8	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	337
	83	97	100	100	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
C	270	62	8	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	342
	79	97	99	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
D	352	189	98	32	26	17	15	10	9	8	7	3	5	6	1	3	3	3	1	3	1	1	1	0	13	807
	44	67	79	83	86	88	90	92	93	94	95	95	96	96	96	97	97	98	98	98	98	98	98	98	100	
E	287	127	59	47	44	28	22	29	12	9	9	12	8	3	4	4	0	0	0	0	0	1	0	0	0	705
	41	59	67	74	80	84	87	91	93	94	95	97	98	99	99	100	100	100	100	100	100	100	0	0	0	
F	219	83	41	32	25	8	7	0	0	3	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	420
	52	72	82	89	95	97	99	99	99	100	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
G	71	32	26	15	10	10	4	5	2	4	3	0	0	1	0	0	0	0	0	0	0	0	0	0	0	183
	39	56	70	79	84	90	92	95	96	98	99	99	99	100	0	0	0	0	0	0	0	0	0	0	0	
TOTAL	1580	593	276	168	133	90	81	58	28	24	21	15	13	10	5	7	3	3	1	3	1	2	1	0	13	3129

Table 2.3-62 — {CCNPP 197 ft (60m) Annual Stability Persistence Summary for Year 2003}

	STABILITY PERSISTENCE (HOURS)/PERCENT																									
STABILITY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	GT.24	TOTAL
A	100	50	26	29	25	12	6	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	251
	40	60	70	82	92	96	99	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
B	208	47	15	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	273
	76	93	99	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
C	289	49	10	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	350
	83	97	99	100	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
D	310	190	99	46	36	27	19	12	14	3	4	8	2	3	3	7	7	2	1	3	1	1	4	0	10	812
	38	62	74	79	84	87	90	91	93	93	94	95	95	95	96	96	97	98	98	98	98	98	99	99	100	
E	287	137	69	41	47	30	17	20	11	11	11	15	6	5	3	7	0	1	0	0	0	0	0	0	0	718
	40	59	69	74	81	85	87	90	92	93	95	97	98	98	99	100	100	100	0	0	0	0	0	0	0	
F	194	83	58	23	13	7	6	3	1	2	4	1	1	0	0	0	0	0	0	0	0	0	0	0	0	396
	49	70	85	90	94	95	97	98	98	98	99	100	100	0	0	0	0	0	0	0	0	0	0	0	0	
G	71	32	17	16	12	9	4	2	2	4	4	2	1	1	1	0	0	0	0	0	0	0	0	0	0	178
	40	58	67	76	83	88	90	92	93	95	97	98	99	99	100	0	0	0	0	0	0	0	0	0	0	
TOTAL	1459	588	294	159	134	85	52	40	28	20	23	26	10	9	7	14	7	3	1	3	1	1	4	0	10	2978

Table 2.3-63 — {CCNPP 197 ft (60m) Annual Stability Persistence Summary for Year 2004}

	STABILITY PERSISTENCE (HOURS)/PERCENT																									
STABILITY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	GT.24	TOTAL
A	106	46	35	21	25	24	21	5	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	284
	37	54	66	73	82	90	98	100	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
B	225	63	7	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	297
	76	97	99	100	100	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
C	284	51	9	3	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	348
	82	96	99	100	100	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
D	289	191	104	52	30	24	18	28	10	13	12	6	5	3	7	2	4	4	3	1	2	3	0	3	12	826
	35	58	71	77	81	84	86	89	90	92	93	94	95	95	96	96	97	97	97	98	98	98	98	99	100	
E	267	105	91	56	33	35	25	23	11	10	10	8	6	5	2	0	0	0	0	0	0	0	0	0	0	687
	39	54	67	76	80	85	89	92	94	95	97	98	99	100	100	0	0	0	0	0	0	0	0	0	0	
F	197	82	44	28	15	7	1	2	4	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	382
	52	73	85	92	96	98	98	98	99	100	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
G	53	34	11	13	10	3	6	5	1	2	4	0	4	2	1	0	0	0	0	0	0	0	0	0	0	149
	36	58	66	74	81	83	87	91	91	93	95	95	98	99	100	0	0	0	0	0	0	0	0	0	0	
TOTAL	1421	572	301	174	113	95	71	63	27	26	27	14	15	10	10	2	4	4	3	1	2	3	0	3	12	2973

Table 2.3-64 — {CCNPP 197 ft (60m) Annual Stability Persistence Summary for Year 2005}

	STABILITY PERSISTENCE (HOURS)/PERCENT																									
STABILITY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	GT.24	TOTAL
A	101	42	30	13	18	20	21	27	11	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	285
	35	50	61	65	72	79	86	95	99	100	100	100	0	0	0	0	0	0	0	0	0	0	0	0	0	
B	214	47	8	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	271
	79	96	99	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
C	273	54	15	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	343
	80	95	100	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
D	293	158	109	48	37	24	19	11	14	9	9	5	7	4	2	6	3	4	8	4	1	0	0	3	7	785
	37	57	71	77	82	85	88	89	91	92	93	94	95	95	95	96	97	97	98	99	99	99	99	99	100	
E	308	98	65	52	37	26	20	16	8	11	5	14	2	7	5	0	1	0	0	0	0	0	0	0	0	675
	46	60	70	77	83	87	90	92	93	95	96	98	98	99	100	100	100	0	0	0	0	0	0	0	0	
F	205	86	45	32	13	10	8	4	2	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	408
	50	71	82	90	93	96	98	99	99	100	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
G	73	19	21	20	4	12	9	6	1	1	5	6	2	4	1	0	0	0	0	0	0	0	0	0	0	184
	40	50	61	72	74	81	86	89	90	90	93	96	97	99	100	0	0	0	0	0	0	0	0	0	0	
TOTAL	1467	504	293	168	109	92	77	64	36	24	20	26	11	15	8	6	4	4	8	4	1	0	0	3	7	2951

Table 2.3-65 — {CCNPP 197 ft (60m) Average Annual Stability Persistence Summary for Years 2000-2005}

	STABILITY PERSISTENCE (HOURS)/PERCENT																									
STABILITY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	GT.24	TOTAL
A	108	53	33	29	27	24	22	13	5	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	314
	35	52	62	72	80	87	94	99	83	50	17	17	0	0	0	0	0	0	0	0	0	0	0	0	0	0
B	256	50	10	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	318
	80	96	99	100	50	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C	284	53	11	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	350
	81	96	99	100	67	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D	334	187	93	43	30	21	14	13	11	8	8	6	5	4	5	5	4	3	3	3	1	1	1	2	9	814
	41	64	75	81	84	87	89	90	92	93	94	94	95	95	96	97	97	98	98	98	98	98	99	99	100	0
E	289	122	72	48	38	30	20	20	11	12	8	11	6	6	3	3	0	0	0	0	0	0	0	0	0	698
	42	59	69	76	81	86	89	91	93	95	96	98	98	99	100	83	67	50	17	17	17	17	0	0	0	0
F	214	85	45	28	16	10	6	3	2	2	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	411
	52	73	84	90	94	97	98	99	99	100	100	50	50	17	0	0	0	0	0	0	0	0	0	0	0	0
G	67	30	20	16	9	9	6	5	2	4	4	2	2	2	1	0	0	0	0	0	0	0	0	0	0	178
	38	54	66	74	80	85	88	91	92	94	96	97	98	99	83	0	0	0	0	0	0	0	0	0	0	0
TOTAL	1551	579	284	166	120	94	68	53	31	26	22	19	14	12	9	7	4	4	3	3	1	2	1	2	9	3082

Table 2.3-66 — {Monthly and Annual Average Mixing Height Values (m)}

(Page 1 of 2)

MONTH	YEAR										Monthly Average	Annual Average
	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005		
JAN	601		593	465	645	611	468	733	756	558	603	748
FEB	736		640	637	653	607	637	476	646	561	621	
MAR	833		834	829	771	909	641	574	759	815	774	
APR	873		932	855	878	597	829	723	812	809	812	
MAY	997		729		810	701	949	633	762	878	807	
JUN	824			973	756	864	953	762	837	896	858	
JUL			889	938	858	990	1020	873	834	815	902	
AUG			1069	1010	748	808	919	789	863	880	886	
SEP			940	747	700	821	714	745	677	971	789	
OCT		721	865	634	733	801	699	718	623	708	723	
NOV		713	529	614	691	467	807	585	603	581	621	
DEC		570	502	599	565	554	564	649	597	560	573	

Table 2.3-66 — {Monthly and Annual Average Mixing Height Values (m)}

(Page 2 of 2)

MONTH	YEAR										Monthly Average	Annual Average
	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005		
JAN	1971		1944	1525	2115	2003	1535	2404	2480	1830	1979	2452
FEB	2414		2099	2088	2141	1991	2090	1560	2118	1841	2038	
MAR	2731		2736	2719	2529	2983	2104	1883	2489	2673	2539	
APR	2863		3056	2804	2879	1959	2718	2372	2662	2652	2663	
MAY	3269		2390		2658	2301	3111	2077	2498	2879	2648	
JUN	2701			3192	2480	2835	3127	2500	2747	2937	2815	
JUL			2917	3075	2814	3247	3347	2862	2737	2672	2959	
AUG			3506	3312	2452	2651	3015	2589	2829	2886	2905	
SEP			3085	2450	2296	2694	2342	2445	2221	3183	2589	
OCT		2365	2836	2081	2405	2627	2294	2355	2045	2322	2370	
NOV		2340	1734	2014	2266	1533	2647	1918	1979	1904	2037	
DEC		1869	1647	1966	1853	1817	1849	2129	1959	1837	1881	

Table 2.3-67 — {Temperature Inversion Frequency and Persistence, Year 2000}

DURATION (HOURS)	NUMBER OF OBSERVATIONS	PERCENT PROBABILITY
1	96	22.91
2	53	35.56
3	33	43.44
4	32	51.07
5	17	55.13
6	18	59.43
7	15	63.01
8	13	66.11
9	13	69.21
10	16	73.03
11	20	77.80
12	27	84.25
13	23	89.74
14	19	94.27
15	12	97.14
16	7	98.81
17	4	99.76
18	0	99.76
19	0	99.76
20	1	100.00

The longest inversion lasted 20 hours.

Of the longest inversions, number 1 started 14 hours into day 1.

Third column defines the percent probability that if an inversion occurs, its duration will be less than the number of hours specified.

Table 2.3-68 — {Temperature Inversion Frequency and Persistence, Year 2001}

	DURATION (HOURS)	NUMBER OF OBSERVATIONS	PERCENT PROBABILITY
	1	82	18.51
	2	56	31.15
	3	36	39.28
	4	28	45.60
	5	20	50.11
	6	19	54.40
	7	17	58.24
	8	26	64.11
	9	16	67.72
	10	13	70.65
	11	14	73.81
	12	35	81.72
	13	31	88.71
	14	24	94.13
	15	20	98.65
	16	3	99.32
	17	1	99.55
	18	1	99.77
	19	1	100.00

The longest inversion lasted 19 hours.

Of the longest inversions, number 1 started 16 hours into day 10

Third column defines the percent probability that if an inversion occurs, its duration will be less than the number of hours specified

Table 2.3-69 — {Temperature Inversion Frequency and Persistence, Year 2002}

DURATION (HOURS)	NUMBER OF OBSERVATIONS	PERCENT PROBABILITY
1	92	21.80
2	38	30.81
3	41	40.52
4	25	46.45
5	19	50.95
6	14	54.27
7	21	59.24
8	19	63.74
9	16	67.54
10	21	72.51
11	24	78.20
12	34	86.26
13	12	89.10
14	13	92.18
15	25	98.10
16	7	99.76
17	1	100.00

The longest inversion lasted 17 hours.

Of the longest inversions, number 1 started 18 hours into day 323.

Third column defines the percent probability that if an inversion occurs, its duration will be less than the number of hours specified

Table 2.3-70 — {Temperature Inversion Frequency and Persistence, Year 2003}

DURATION (HOURS)	NUMBER OF OBSERVATIONS	PERCENT PROBABILITY
1	113	24.30
2	72	39.78
3	33	46.88
4	42	55.91
5	14	58.92
6	22	63.66
7	17	67.31
8	14	70.32
9	11	72.69
10	14	75.70
11	13	78.49
12	19	82.58
13	20	86.88
14	26	92.47
15	23	97.42
16	8	99.14
17	1	99.35
18	1	99.57
19	1	99.78
20	1	100.00

The longest inversion lasted 20 hours.

Of the longest inversions, number 1 started 15 hours into day 76.

Third column defines the percent probability that if an inversion occurs, its duration will be less than the number of hours specified.

Table 2.3-71 — {Temperature Inversion Frequency and Persistence, Year 2004}

	DURATION (HOURS)	NUMBER OF OBSERVATIONS	PERCENT PROBABILITY
	1	94	22.98
	2	54	36.19
	3	34	44.50
	4	29	51.59
	5	12	54.52
	6	18	58.92
	7	21	64.06
	8	18	68.46
	9	14	71.88
	10	13	75.06
	11	25	81.17
	12	21	86.31
	13	21	91.44
	14	13	94.62
	15	13	97.80
	16	6	99.27
	17	2	99.76
	18	1	100.00

The longest inversion lasted 18 hours.

Of the longest inversions, number 1 started 18 hours into day 286.

Third column defines the percent probability that if an inversion occurs, its duration will be less than the number of hours specified

Table 2.3-72 — {Temperature Inversion Frequency and Persistence, Year 2005}

DURATION (HOURS)	NUMBER OF OBSERVATIONS	PERCENT PROBABILITY
1	83	20.39
2	47	31.94
3	36	40.79
4	31	48.40
5	18	52.83
6	15	56.51
7	15	60.20
8	9	62.41
9	5	63.64
10	20	68.55
11	20	73.46
12	27	80.10
13	28	86.98
14	26	93.37
15	17	97.54
16	6	99.02
17	1	99.26
18	1	99.51
19	0	99.51
20	0	99.51
21	1	99.75
22	0	99.75
23	0	99.75
24	0	99.75
25	0	99.75
26	0	99.75
27	0	99.75
28	0	99.75
29	0	99.75
30	0	99.75
31	1	100.00

The longest inversion lasted 31 hours.

Of the longest inversions, number 1 started 1 hour into day 12.

Third column defines the percent probability that if an inversion occurs, its duration will be less than the number of hours specified.

Table 2.3-73 — {Tower Instrument Specifications and Accuracies for Meteorological Monitoring Program (Preoperational and Operational)}

Characteristics	Requirements*	Specifications
	Wind Speed Sensor	
Accuracy	±0.2 m/s (±0.45 mph) OR ±5% of observed wind speed	±1%
Resolution	0.1 m/s (0.1 mph)	0.1 m/s
	Wind Direction Sensor	
Accuracy	±5 degrees	±1.5 degrees
Resolution	1.0 degree	1.0 degree
	Temperature Sensors	
Accuracy (ambient)	±0.5° C (±0.9° F)	±0.05° C
Resolution (ambient)	0.1° C (0.1° F)	0.1° C
Accuracy (vertical temperature difference)	±0.1° C (±0.18° F)	±0.05° C
Resolution (vertical temperature difference)	0.01° C (0.01° F)	0.01° C
	Precipitation Sensor	
Accuracy	±10% for a volume equivalent to 2.54 mm (0.1 in) of precipitation at a rate < 50 mm/hr (< 2 in/ hr)	±1%
Resolution	0.25 mm (0.01 in)	0.25 mm
	Time	
Accuracy	± 5 min	± 5 min
Resolution	1 min	1 min

Note:

* Accuracy and resolution criteria from Regulatory Guide 1.23, Revision 1

Table 2.3-74 — {Distances from Meteorological Tower to Nearby Obstructions to Air Flow}

Downwind Sector*	Approximate Distance miles (meters)
N	0.25 (402)
NNE	0.33 (531)
NE	N/A**
ENE	N/A**
E	N/A**
ESE	1 (1609)
SE	0.1 (161)
SSE	0.1 (161)
S	0.1 (161)
SSW	0.25 (402)
SW	0.33 (531)
WSW	0.1 (161)
W	0.25 (402)
WNW	0.33 (531)
NW	0.25 (402)
NNW	0.25 (402)

Notes:

* With respect to True North

** Lower than tower base elevation and therefore no possible obstructions

Table 2.3-75 — {Site-Specific EAB/LPZ Accident x/Q Values for Ground Level Release}

Distance Downwind (miles)	0-2 hours χ/Q (sec/m³)	2-8 hours χ/Q (sec/m³)	8-24 hours χ/Q (sec/m³)	1-4 days χ/Q (sec/m³)	4-30 days χ/Q (sec/m³)
0.5 (**EAB**)	6.914E-04	4.131E-04	2.609E-04	1.289E-04	4.686E-05
1.5 (**LPZ**)	2.151E-04	1.176E-04	6.865E-05	3.005E-05	9.179E-06

Table 2.3-76 — {Control Room/TSC x/Q Values for Vent Stack Release}

Stack Release	**Wind Direction = 0 (N)**	**Wind Direction = 23 (NNE)**	**Wind Direction = 45 (NE)**	**Wind Direction = 68 (ENE)**	**Wind Direction = 90 (E)**	**Wind Direction = 113 (ESE)**	**Wind Direction = 135 (SE)**	**Wind Direction = 158 (SSE)**
Time Period	χ/Q (sec/m^3)	χ/Q (sec/m^3)	χ/Q (sec/m^3)	χ/Q (sec/m^3)	χ/Q (sec/m^3)	χ/Q (sec/m^3)	χ/Q (sec/m^3)	χ/Q (sec/m^3)
0 to 2 hours	1.43E-03	1.40E-03	1.38E-03	1.35E-03	1.29E-03	1.28E-03	1.36E-03	1.47E-03
2 to 8 hours	1.20E-03	1.16E-03	1.14E-03	1.03E-03	7.85E-04	6.96E-04	8.60E-04	1.11E-03
8 to 24 hours	4.64E-04	4.84E-04	4.64E-04	3.74E-04	3.00E-04	2.73E-04	2.88E-04	3.74E-04
1 to 4 days	3.16E-04	3.23E-04	3.11E-04	2.62E-04	2.08E-04	1.99E-04	2.19E-04	2.64E-04
4 to 30 days	2.82E-04	2.44E-04	2.21E-04	1.85E-04	1.52E-04	1.36E-04	1.52E-04	2.01E-04
Stack Release	Wind Direction = 180 (S)	Wind Direction = 203 (SSW)	Wind Direction = 225 (SW)	Wind Direction = 248 (WSW)	Wind Direction = 270 (W)	Wind Direction = 293 (WNW)	Wind Direction = 315 (NW)	Wind Direction = 338 (NNW)
Time Period	χ/Q (sec/m^3)	χ/Q (sec/m^3)	χ/Q (sec/m^3)	χ/Q (sec/m^3)	χ/Q (sec/m^3)	χ/Q (sec/m^3)	χ/Q (sec/m^3)	χ/Q (sec/m^3)
0-2 hours	1.73E-03	1.81E-03	1.81E-03	1.80E-03	1.72E-03	1.62E-03	1.60E-03	1.54E-03
2-8 hours	1.38E-03	1.55E-03	1.54E-03	1.46E-03	1.27E-03	1.26E-03	1.29E-03	1.24E-03
8-24 hours	5.13E-04	5.60E-04	5.38E-04	4.97E-04	4.58E-04	4.88E-04	4.93E-04	4.75E-04
1-4 days	4.14E-04	4.95E-04	4.77E-04	4.50E-04	3.71E-04	3.49E-04	3.46E-04	3.32E-04
4-30 days	3.19E-04	3.87E-04	3.77E-04	3.42E-04	2.98E-04	2.93E-04	3.00E-04	3.06E-04

Note: Bold entries identify maximum values in this table. SSW is the critical downwind sector.

Table 2.3-77 — {Control Room/TSC x/Q Values for Main Steam Relief Valve Release}

Main Steam Relief Valve Release	**SG-4 to Div. 3 Air Intake Wind Direction = 203 (SSW)**	**SG-1 to Div. 3 Air Intake Wind Direction = 203 (SSW)**	**SG-3 to Div. 3 Air Intake Wind Direction = 203 (SSW)**	**SG-2 to Div. 3 Air Intake Wind Direction = 203 (SSW)**
Time Period	χ/Q (sec/m^3)	χ/Q (sec/m^3)	χ/Q (sec/m^3)	χ/Q (sec/m^3)
0-2 hours	2.97E-03	1.42E-03	**3.90E-03**	1.71E-03
2-8 hours	2.61E-03	1.26E-03	**3.41E-03**	1.50E-03
8-24 hours	9.41E-04	4.53E-04	**1.23E-03**	1.42E-04
1-4 days	8.18E-04	3.94E-04	**1.07E-03**	1.70E-04
4-30 days	6.42E-04	3.11E-04	**8.39E-04**	1.70E-04

Note: Bold entries identify maximum values in this table. The critical wind direction sector was based on the stack releases in Table 2.3-76.

Table 2.3-78 — {Control Room/TSC x/Q Values for Safeguards Building Roof Release (via Safeguards Building Canopies)}

Safeguards Building Roof Release	**Pt. 1 Wind Direction = 203 (SSW)**	**Pt. 2 Wind Direction = 203 (SSW)**
Time Period	χ/Q (sec/m^3)	χ/Q (sec/m^3)
0-2 hours	**5.88E-03**	1.48E-03
2-8 hours	**4.99E-03**	1.29E-03
8-24 hours	**1.95E-03**	5.14E-04
1-4 days	**1.60E-03**	4.09E-04
4-30 days	**1.23E-03**	3.16E-04

Note: Bold entries identify maximum values in this table. The critical wind direction sector was based on the stack releases in Table 2.3-76.

Table 2.3-79 — {Control Room/TSC x/Q Values for Equipment Hatch Release}

Equip. Hatch Release	**Wind Direction = 203 (SSW)**
Time Period	χ/Q (sec/m^3)
0-2 hours	9.42E-04
2-8 hours	8.10E-04
8-24 hours	2.94E-04
1-4 days	2.58E-04
4-30 days	2.03E-04

Note: The critical wind direction sector was based on the stack releases in Table 2.3-76.

Table 2.3-80 — Deleted

Table 2.3-81 — {AEOLUS3 Design Input}

Parameter	Value(s)
Wind speed group upper limits for AEOLUS3	0.234, 0.75, 1.0, 1.5, 2.0, 3.0, 5.0, 7.0, 10.0, 13.0, 18.0, 50.0 meters/second
AEOLUS3 wind speed assigned to calms	0.25 mph
Anemometer starting speed for the AEOLUS3 runs	0.5 mph
The annual average mixing layer height at CC	900 meters for accident analysis, 748 meters for normal effluent analysis (Both are conservative, low values; 748 was used after purchase of data for one station from the National Climatic Data Center. The 900 meter value was determined by interpolation of data from many stations and may therefore be considered more accurate for the site.)
Temperature sensor separation	50 meters
Wind instrument heights	10 meters and 60 meters
CCNPP Unit 3 meteorological channel units of measure	Wind speed - miles per hour Wind direction - degrees from True North Delta Temperature - degrees Fahrenheit per sensor separation in feet
Stack flow rate for normal operations	242,458 cfm
Stack inner diameter	3.8 meters
Stack height	62 meters (2 meters above assumed Reactor Building)
Reactor Building height and cross sectional area	60 meters (used for cross sectional area for building wake – smaller height gives a lower credit for building wake; actual = 62.3 meter) and 2940 m^2
Maximum Terrain Heights	Values in meters above plant grade
0.5 miles	0.0, 0.0, 0.0, 0.0, 16.8, 19.8, 22.9, 22.9, 19.8, 29.0, 29.0, 25.9, 32.0, 22.9, 22.9, 19.8
0.62 miles	0.0, 0.0, 0.0, 0.0, 16.8, 19.8, 22.9, 22.9, 19.8, 29.0, 29.0, 25.9, 32.0, 22.9, 22.9, 19.8
1.5 miles	0.0, 0.0, 0.0, 0.0, 16.8, 19.8, 25.9, 22.9, 25.9, 29.0, 29.0, 25.9, 32.0, 25.9, 25.9, 19.8
2.5 miles	0.0, 0.0, 0.0, 0.0, 16.8, 19.8, 25.9, 25.9, 25.9, 29.0, 29.0, 25.9, 32.0, 25.9, 25.9, 19.8
3.5 miles	0.0, 0.0, 0.0, 0.0, 16.8, 19.8, 25.9, 25.9, 26.8, 29.0, 29.0, 25.9, 32.0, 25.9, 25.9, 19.8
4.5 miles	0.0, 0.0, 0.0, 0.0, 16.8, 19.8, 25.9, 25.9, 26.8, 29.0, 29.0, 25.9, 32.0, 29.6, 25.9, 19.8
7.5 miles	0.0, 0.0, 0.0, 0.0, 16.8, 19.8, 25.9, 25.9, 26.8, 29.0, 29.0, 25.9, 32.0, 32.0, 26.3, 26.3
15 miles	0.0, 0.0, 0.0, 0.0, 16.8, 19.8, 25.9, 25.9, 26.8, 29.0, 29.0, 26.3, 44.3, 32.0, 27.3, 43.3
25 miles	0.0, 0.0, 6.3, 6.3, 19.1, 22.4, 28.9, 28.9, 29.9, 32.2, 31.3, 26.3, 45.3, 49.3, 52.3, 61.3
35 miles	6.3, 1.3, 6.3, 6.3, 19.1, 22.4, 28.9, 28.9, 29.9, 32.2, 39.3, 46.3, 45.3, 51.3, 66.3, 61.3
45 miles	6.3, 6.3, 6.3, 6.3, 19.1, 22.4, 28.9, 28.9, 29.9, 32.2, 46.3, 52.3, 45.3, 78.3, 78.3, 61.3

Table 2.3-82 — {ARCON96 Design Inputs}

Minimum wind speed value	0.5 m/sec
Surface roughness	0.2
Sector averaging constant	4.3
Wind direction window	90 degrees
Control Room air intake location employed in analysis	Intake closest to stack.
Control Room air intake elevation	32.1 meters (Mid-point of intake)
Control Room air intake horizontal distance to stack base	69.0 meters (scaled)
Control Room air intake horizontal distance to Main Steam Relief Train, via Silencer (referred to as the Silencer release point in the present application):	
SG-4 Silencer to MCR Div. 3 Air Intake (AI)	53.0 meters
SG-3 Silencer to MCR Div. 3 AI	46.0 meters
SG-1 Silencer to MCR Div. 3 AI	78.0 meters
SG-2 Silencer to MCR Div. 3 AI	71.0 meters
Control Room air intake horizontal distances to Canopy exhausts (referred to as the Canopy release point in the present application)	
Southeast side of SAB Div. 4	65.3 meters (scaled)
Control Room air intake horizontal distance to Material Lock (for the Equipment Hatch release)	97.5 meters (scaled)
Site grade elevation	0 meters
Release heights used	
Silencer	33.9 meters
Stack	32.1 meters (note a)
Canopy Pt. 1	15.5 meters
Canopy Pt. 2	11.5 meters elevation
Material Lock (for Equipment Hatch release)	23.2 meters (release height employed in analysis = 32.1 meters, conservative)

Notes:

a. Stack release height assumed to be same as the mid-point of the control room air intake.

Table 2.3-83 — {Normal Effluent Annual Average, Undecayed, Undepleted x/Q Values for Mixed Mode Release Using 242,458 cfm Flow Rate for Grid Receptors}

(Page 1 of 2)

Downwind Sector	χ/Q (sec/m^3) 0.5 miles	χ/Q (sec/m^3) 0.75 miles	χ/Q (sec/m^3) 1.0 mile	χ/Q (sec/m^3) 1.5 miles	χ/Q (sec/m^3) 2.0 miles	χ/Q (sec/m^3) 2.5 miles	χ/Q (sec/m^3) 3.0 miles	χ/Q (sec/m^3) 3.5 miles	χ/Q (sec/m^3) 4.0 miles	χ/Q (sec/m^3) 4.5 miles	χ/Q (sec/m^3) 5.0 miles
N	1.923E-06	1.065E-06	5.811E-07	2.571E-07	1.538E-07	1.055E-07	8.046E-08	6.401E-08	5.261E-08	4.482E-08	3.881E-08
NNE	3.287E-06	1.754E-06	9.348E-07	3.980E-07	2.333E-07	1.584E-07	1.201E-07	9.528E-08	7.821E-08	6.663E-08	5.773E-08
NE	5.039E-06	2.711E-06	1.443E-06	6.059E-07	3.491E-07	2.334E-07	1.748E-07	1.372E-07	1.117E-07	9.446E-08	8.134E-08
ENE	2.038E-06	1.090E-06	5.855E-07	2.525E-07	1.491E-07	1.017E-07	7.731E-08	6.142E-08	5.048E-08	4.303E-08	3.731E-08
E	1.516E-06	8.448E-07	4.715E-07	2.135E-07	1.287E-07	8.848E-08	6.751E-08	5.374E-08	4.421E-08	3.773E-08	3.273E-08
ESE	1.987E-06	1.123E-06	6.238E-07	2.761E-07	1.627E-07	1.099E-07	8.269E-08	6.509E-08	5.305E-08	4.489E-08	3.866E-08
SE	2.416E-06	1.464E-06	8.347E-07	3.833E-07	2.214E-07	1.458E-07	1.072E-07	8.261E-08	6.606E-08	5.495E-08	4.660E-08
SSE	1.381E-06	8.911E-07	5.240E-07	2.393E-07	1.396E-07	9.489E-08	6.969E-08	5.363E-08	4.280E-08	3.554E-08	3.008E-08
S	1.815E-06	1.127E-06	6.501E-07	3.095E-07	1.771E-07	1.155E-07	8.420E-08	6.481E-08	5.148E-08	4.256E-08	3.589E-08
SSW	1.599E-06	1.050E-06	6.224E-07	2.824E-07	1.628E-07	1.066E-07	7.786E-08	5.963E-08	4.741E-08	3.922E-08	3.308E-08
SW	1.557E-06	1.013E-06	5.897E-07	2.619E-07	1.496E-07	9.750E-08	7.102E-08	5.432E-08	4.314E-08	3.568E-08	3.009E-08
WSW	1.053E-06	7.219E-07	4.396E-07	2.056E-07	1.204E-07	7.956E-08	5.843E-08	4.492E-08	3.580E-08	2.968E-08	2.508E-08
W	6.742E-07	5.085E-07	3.282E-07	1.627E-07	9.803E-08	6.584E-08	4.888E-08	3.787E-08	3.036E-08	2.528E-08	2.143E-08
WNW	4.529E-07	3.122E-07	2.012E-07	1.108E-07	6.956E-08	4.823E-08	3.671E-08	2.902E-08	2.365E-08	2.079E-08	1.781E-08
NW	6.608E-07	4.337E-07	2.685E-07	1.399E-07	8.563E-08	5.846E-08	4.403E-08	3.454E-08	2.799E-08	2.353E-08	2.012E-08
NNW	1.586E-06	9.808E-07	5.737E-07	2.658E-07	1.580E-07	1.062E-07	7.933E-08	6.190E-08	4.999E-08	4.193E-08	3.580E-08

Table 2.3-83 — {Normal Effluent Annual Average, Undecayed, Undepleted x/Q Values for Mixed Mode Release Using 242,458 cfm Flow Rate for Grid Receptors}

(Page 2 of 2)

Downwind Sector	χ/Q (sec/m³) 7.5 miles	χ/Q (sec/m³) 10 miles	χ/Q (sec/m³) 15 mile	χ/Q (sec/m³) 20 miles	χ/Q (sec/m³) 25 miles	χ/Q (sec/m³) 30 miles	χ/Q (sec/m³) 35 miles	χ/Q (sec/m³) 40 miles	χ/Q (sec/m³) 45 miles	χ/Q (sec/m³) 50 miles
N	2.217E-08	1.608E-08	1.013E-08	7.265E-09	5.602E-09	4.526E-09	3.937E-09	3.363E-09	2.926E-09	2.584E-09
NNE	3.321E-08	2.429E-08	1.555E-08	1.129E-08	8.797E-09	7.170E-09	6.090E-09	5.239E-09	4.773E-09	4.236E-09
NE	4.586E-08	3.318E-08	2.099E-08	1.515E-08	1.236E-08	1.005E-08	8.434E-09	7.247E-09	6.340E-09	5.625E-09
ENE	2.152E-08	1.580E-08	1.018E-08	7.445E-09	6.198E-09	5.078E-09	4.290E-09	3.706E-09	3.258E-09	2.903E-09
E	1.892E-08	1.390E-08	8.963E-09	6.547E-09	5.263E-09	4.304E-09	3.629E-09	3.129E-09	2.746E-09	2.443E-09
ESE	2.176E-08	1.570E-08	9.870E-09	7.089E-09	5.615E-09	4.546E-09	3.802E-09	3.257E-09	2.841E-09	2.514E-09
SE	2.468E-08	1.706E-08	1.011E-08	6.975E-09	5.294E-09	4.183E-09	3.429E-09	2.888E-09	2.482E-09	2.169E-09
SSE	1.578E-08	1.081E-08	6.328E-09	4.322E-09	3.249E-09	2.550E-09	2.079E-09	1.743E-09	1.492E-09	1.299E-09
S	1.862E-08	1.270E-08	7.407E-09	5.053E-09	3.791E-09	2.977E-09	2.429E-09	2.037E-09	1.746E-09	1.522E-09
SSW	1.716E-08	1.170E-08	6.808E-09	4.636E-09	3.470E-09	2.721E-09	2.217E-09	1.857E-09	1.590E-09	1.385E-09
SW	1.562E-08	1.065E-08	6.206E-09	4.230E-09	3.169E-09	2.487E-09	2.078E-09	1.741E-09	1.519E-09	1.322E-09
WSW	1.306E-08	8.908E-09	5.187E-09	3.526E-09	2.614E-09	2.048E-09	1.779E-09	1.486E-09	1.290E-09	1.120E-09
W	1.128E-08	7.736E-09	4.767E-09	3.231E-09	2.399E-09	1.876E-09	1.525E-09	1.275E-09	1.089E-09	9.469E-10
WNW	9.934E-09	6.957E-09	4.180E-09	2.903E-09	2.411E-09	1.901E-09	1.571E-09	1.321E-09	1.234E-09	1.074E-09
NW	1.095E-08	7.658E-09	4.619E-09	3.201E-09	2.677E-09	2.106E-09	1.789E-09	1.499E-09	1.309E-09	1.139E-09
NNW	2.036E-08	1.421E-08	9.444E-09	6.507E-09	5.273E-09	4.148E-09	3.389E-09	2.847E-09	2.442E-09	2.130E-09

Table 2.3-84 — {Normal Effluent Annual Average, Undecayed, Undepleted x/Q Values for Mixed Mode Release Using 242,458 cfm Flow Rate for Special and Additional Receptors}

Downwind Sector	χ/Q (sec/m^3) Site Boundary	χ/Q (sec/m^3) Nearest Residents	χ/Q (sec/m^3) Nearest Gardens
N	2.885E-06	N/A	N/A
NNE	9.558E-06	N/A	N/A
NE	1.379E-05	N/A	N/A
ENE	4.991E-06	N/A	N/A
E	2.778E-06	N/A	N/A
ESE	2.486E-06	N/A	N/A
SE	1.076E-06	8.707E-07	8.707E-07
SSE	5.252E-07	3.545E-07	3.054E-07
S	8.681E-07	3.717E-07	3.717E-07
SSW	8.366E-07	N/A	N/A
SW	4.960E-07	4.040E-07	3.009E-07
WSW	3.802E-07	4.279E-07	4.279E-07
W	2.914E-07	2.129E-07	1.495E-07
WNW	1.127E-07	1.053E-07	8.776E-08
NW	2.545E-07	5.686E-08	5.686E-08
NNW	1.699E-06	N/A	N/A

Table 2.3-85 — {Normal Effluent Annual Average, Depleted x/Q Values for Mixed Mode Release Using 242,458 cfm Flow Rate for Grid Receptors}

Downwind Sector	χ/Q (sec/m^3) 0.5 miles	χ/Q (sec/m^3) 0.75 miles	χ/Q (sec/m^3) 1.0 mile	χ/Q (sec/m^3) 1.5 miles	χ/Q (sec/m^3) 2.0 miles	χ/Q (sec/m^3) 2.5 miles	χ/Q (sec/m^3) 3.0 miles	χ/Q (sec/m^3) 3.5 miles	χ/Q (sec/m^3) 4.0 miles	χ/Q (sec/m^3) 4.5 miles	χ/Q (sec/m^3) 5.0 miles
N	1.760E-06	9.545E-07	5.149E-07	2.253E-07	1.340E-07	9.153E-08	6.951E-08	5.510E-08	4.513E-08	3.833E-08	3.308E-08
NNE	3.008E-06	1.570E-06	8.255E-07	3.458E-07	2.007E-07	1.353E-07	1.020E-07	8.050E-08	6.579E-08	5.582E-08	4.818E-08
NE	4.614E-06	2.427E-06	1.274E-06	5.254E-07	2.990E-07	1.980E-07	1.470E-07	1.146E-07	9.272E-08	7.798E-08	6.680E-08
ENE	1.870E-06	9.791E-07	5.199E-07	2.212E-07	1.295E-07	8.772E-08	6.629E-08	5.240E-08	4.287E-08	3.639E-08	3.142E-08
E	1.392E-06	7.627E-07	4.229E-07	1.902E-07	1.141E-07	7.811E-08	5.935E-08	4.707E-08	3.860E-08	3.283E-08	2.839E-08
ESE	1.823E-06	1.013E-06	5.585E-07	2.449E-07	1.433E-07	9.622E-08	7.202E-08	5.641E-08	4.578E-08	3.859E-08	3.311E-08
SE	2.220E-06	1.328E-06	7.531E-07	3.439E-07	1.970E-07	1.287E-07	9.395E-08	7.192E-08	5.715E-08	4.727E-08	3.986E-08
SSE	1.272E-06	8.145E-07	4.778E-07	2.168E-07	1.255E-07	8.487E-08	6.189E-08	4.730E-08	3.752E-08	3.097E-08	2.606E-08
S	1.680E-06	1.033E-06	5.933E-07	2.816E-07	1.596E-07	1.032E-07	7.458E-08	5.698E-08	4.493E-08	3.689E-08	3.091E-08
SSW	1.491E-06	9.745E-07	5.766E-07	2.596E-07	1.484E-07	9.633E-08	6.978E-08	5.303E-08	4.186E-08	3.439E-08	2.883E-08
SW	1.449E-06	9.378E-07	5.444E-07	2.396E-07	1.356E-07	8.756E-08	6.325E-08	4.799E-08	3.784E-08	3.108E-08	2.604E-08
WSW	9.797E-07	6.711E-07	4.089E-07	1.901E-07	1.104E-07	7.237E-08	5.272E-08	4.022E-08	3.183E-08	2.621E-08	2.201E-08
W	6.324E-07	4.789E-07	3.101E-07	1.533E-07	9.180E-08	6.126E-08	4.520E-08	3.480E-08	2.774E-08	2.297E-08	1.938E-08
WNW	4.205E-07	2.897E-07	1.876E-07	1.039E-07	6.502E-08	4.490E-08	3.403E-08	2.678E-08	2.174E-08	1.909E-08	1.629E-08
NW	6.130E-07	4.005E-07	2.485E-07	1.299E-07	7.919E-08	5.382E-08	4.035E-08	3.151E-08	2.542E-08	2.128E-08	1.812E-08
NNW	1.462E-06	8.954E-07	5.225E-07	2.408E-07	1.423E-07	9.513E-08	7.063E-08	5.481E-08	4.404E-08	3.676E-08	3.125E-08

Table 2.3-86 — {Normal Effluent Annual Average, Depleted x/Q Values for Mixed Mode Release Using 242,458 cfm Flow Rate for Grid Receptors 7.5 mi to 50 mi}

Downwind Sector	χ/Q (sec/m^3) 7.5 miles	χ/Q (sec/m^3) 10 miles	χ/Q (sec/m^3) 15 mile	χ/Q (sec/m^3) 20 miles	χ/Q (sec/m^3) 25 miles	χ/Q (sec/m^3) 30 miles	χ/Q (sec/m^3) 35 miles	χ/Q (sec/m^3) 40 miles	χ/Q (sec/m^3) 45 miles	χ/Q (sec/m^3) 50 miles
N	1.868E-08	1.340E-08	8.305E-09	5.878E-09	4.485E-09	3.591E-09	3.132E-09	2.657E-09	2.298E-09	2.017E-09
NNE	2.736E-08	1.978E-08	1.244E-08	8.912E-09	6.869E-09	5.547E-09	4.687E-09	4.003E-09	3.668E-09	3.235E-09
NE	3.698E-08	2.634E-08	1.628E-08	1.156E-08	9.443E-09	7.597E-09	6.315E-09	5.381E-09	4.672E-09	4.115E-09
ENE	1.788E-08	1.297E-08	8.214E-09	5.928E-09	4.961E-09	4.034E-09	3.383E-09	2.904E-09	2.539E-09	2.250E-09
E	1.625E-08	1.183E-08	7.532E-09	5.449E-09	4.371E-09	3.552E-09	2.977E-09	2.554E-09	2.231E-09	1.975E-09
ESE	1.839E-08	1.311E-08	8.101E-09	5.743E-09	4.529E-09	3.635E-09	3.016E-09	2.565E-09	2.224E-09	1.957E-09
SE	2.067E-08	1.403E-08	8.084E-09	5.456E-09	4.081E-09	3.176E-09	2.567E-09	2.135E-09	1.815E-09	1.569E-09
SSE	1.337E-08	8.997E-09	5.116E-09	3.418E-09	2.529E-09	1.956E-09	1.572E-09	1.302E-09	1.102E-09	9.494E-10
S	1.562E-08	1.041E-08	5.855E-09	3.883E-09	2.851E-09	2.195E-09	1.755E-09	1.446E-09	1.219E-09	1.046E-09
SSW	1.457E-08	9.706E-09	5.448E-09	3.606E-09	2.639E-09	2.027E-09	1.617E-09	1.330E-09	1.120E-09	9.590E-10
SW	1.317E-08	8.790E-09	4.952E-09	3.289E-09	2.415E-09	1.861E-09	1.537E-09	1.268E-09	1.093E-09	9.369E-10
WSW	1.117E-08	7.458E-09	4.203E-09	2.785E-09	2.022E-09	1.556E-09	1.345E-09	1.106E-09	9.432E-10	8.070E-10
W	9.991E-09	6.734E-09	4.058E-09	2.695E-09	1.968E-09	1.517E-09	1.216E-09	1.004E-09	8.487E-10	7.291E-10
WNW	8.964E-09	6.202E-09	3.658E-09	2.505E-09	2.078E-09	1.624E-09	1.329E-09	1.107E-09	9.486E-10	8.114E-10
NW	9.709E-09	6.696E-09	3.954E-09	2.695E-09	2.244E-09	1.742E-09	1.426E-09	1.175E-09	9.615E-10	8.199E-10
NNW	1.757E-08	1.208E-08	7.968E-09	5.395E-09	4.271E-09	3.304E-09	2.657E-09	2.194E-09	1.853E-09	1.592E-09

Table 2.3-87 — {Normal Effluent Annual Average, Depleted χ/Q Values for Mixed Mode Release Using 242,458 cfm Flow Rate for Special and Additional Receptors}

Downwind Sector	χ/Q (sec/m^3) Site Boundary	χ/Q (sec/m^3) Nearest Residents	χ/Q (sec/m^3) Nearest Gardens
N	2.677E-06	N/A	N/A
NNE	9.030E-06	N/A	N/A
NE	1.301E-05	N/A	N/A
ENE	4.701E-06	N/A	N/A
E	2.597E-06	N/A	N/A
ESE	2.298E-06	N/A	N/A
SE	9.733E-07	7.859E-07	7.859E-07
SSE	4.789E-07	3.223E-07	2.773E-07
S	7.939E-07	3.389E-07	3.389E-07
SSW	7.759E-07	N/A	N/A
SW	4.573E-07	3.717E-07	2.758E-07
WSW	3.534E-07	3.980E-07	3.980E-07
W	2.753E-07	2.009E-07	1.407E-07
WNW	1.054E-07	9.872E-08	8.218E-08
NW	2.356E-07	5.233E-08	5.233E-08
NNW	1.570E-06	N/A	N/A

Table 2.3-88 — {CCNPP Unit 3 Normal Effluent Annual Average, Gamma x/Q Values for Mixed Mode Release Using 242,458 cfm Flow Rate for Grid Receptors}

Downwind Sector	χ/Q (sec/m^3) 0.5 miles	χ/Q (sec/m^3) 0.75 miles	χ/Q (sec/m^3) 1.0 mile	χ/Q (sec/m^3) 1.5 miles	χ/Q (sec/m^3) 2.0 miles	χ/Q (sec/m^3) 2.5 miles	χ/Q (sec/m^3) 3.0 miles	χ/Q (sec/m^3) 3.5 miles	χ/Q (sec/m^3) 4.0 miles	χ/Q (sec/m^3) 4.5 miles	χ/Q (sec/m^3) 5.0 miles
N	1.415E-06	9.137E-07	5.319E-07	2.442E-07	1.460E-07	9.939E-08	7.527E-08	5.957E-08	4.877E-08	4.143E-08	3.580E-08
NNE	2.160E-06	1.379E-06	7.991E-07	3.647E-07	2.176E-07	1.481E-07	1.123E-07	8.900E-08	7.299E-08	6.212E-08	5.377E-08
NE	3.100E-06	1.968E-06	1.135E-06	5.133E-07	3.040E-07	2.057E-07	1.552E-07	1.226E-07	1.002E-07	8.505E-08	7.345E-08
ENE	1.504E-06	9.617E-07	5.580E-07	2.548E-07	1.519E-07	1.034E-07	7.835E-08	6.210E-08	5.093E-08	4.335E-08	3.752E-08
E	1.270E-06	8.198E-07	4.771E-07	2.182E-07	1.299E-07	8.814E-08	6.661E-08	5.265E-08	4.308E-08	3.659E-08	3.162E-08
ESE	1.470E-06	9.407E-07	5.436E-07	2.457E-07	1.449E-07	9.760E-08	7.331E-08	5.765E-08	4.696E-08	3.972E-08	3.420E-08
SE	1.716E-06	1.100E-06	6.334E-07	2.878E-07	1.671E-07	1.109E-07	8.221E-08	6.389E-08	5.150E-08	4.315E-08	3.683E-08
SSE	1.113E-06	7.248E-07	4.199E-07	1.884E-07	1.097E-07	7.407E-08	5.484E-08	4.255E-08	3.424E-08	2.864E-08	2.440E-08
S	1.453E-06	9.258E-07	5.304E-07	2.428E-07	1.394E-07	9.163E-08	6.741E-08	5.224E-08	4.188E-08	3.490E-08	2.965E-08
SSW	1.370E-06	8.780E-07	5.041E-07	2.225E-07	1.279E-07	8.412E-08	6.187E-08	4.777E-08	3.828E-08	3.190E-08	2.709E-08
SW	1.286E-06	8.259E-07	4.729E-07	2.081E-07	1.194E-07	7.843E-08	5.763E-08	4.445E-08	3.559E-08	2.964E-08	2.516E-08
WSW	1.004E-06	6.576E-07	3.815E-07	1.707E-07	9.890E-08	6.536E-08	4.821E-08	3.728E-08	2.990E-08	2.493E-08	2.118E-08
W	8.038E-07	5.327E-07	3.119E-07	1.414E-07	8.256E-08	5.487E-08	4.065E-08	3.154E-08	2.537E-08	2.120E-08	1.805E-08
WNW	5.959E-07	3.950E-07	2.331E-07	1.108E-07	6.573E-08	4.426E-08	3.315E-08	2.597E-08	2.105E-08	1.811E-08	1.550E-08
NW	7.179E-07	4.689E-07	2.742E-07	1.283E-07	7.546E-08	5.053E-08	3.771E-08	2.945E-08	2.383E-08	2.003E-08	1.714E-08
NNW	1.365E-06	8.820E-07	5.114E-07	2.308E-07	1.352E-07	9.033E-08	6.731E-08	5.253E-08	4.249E-08	3.570E-08	3.054E-08

Table 2.3-89 — {CCNPP Unit 3 Normal Effluent Annual Average, Gamma x/Q Values for Mixed Mode Release Using 242,458 cfm Flow Rate for Grid Receptors}

Downwind Sector	χ/Q (sec/m^3) 7.5 miles	χ/Q (sec/m^3) 10 miles	χ/Q (sec/m^3) 15 mile	χ/Q (sec/m^3) 20 miles	χ/Q (sec/m^3) 25 miles	χ/Q (sec/m^3) 30 miles	χ/Q (sec/m^3) 35 miles	χ/Q (sec/m^3) 40 miles	χ/Q (sec/m^3) 45 miles	χ/Q (sec/m^3) 50 miles
N	2.036E-08	1.475E-08	9.307E-09	6.685E-09	5.162E-09	4.175E-09	3.577E-09	3.058E-09	2.663E-09	2.353E-09
NNE	3.084E-08	2.253E-08	1.439E-08	1.044E-08	8.122E-09	6.613E-09	5.590E-09	4.805E-09	4.301E-09	3.815E-09
NE	4.181E-08	3.040E-08	1.933E-08	1.398E-08	1.119E-08	9.095E-09	7.631E-09	6.554E-09	5.730E-09	5.082E-09
ENE	2.155E-08	1.577E-08	1.011E-08	7.357E-09	5.953E-09	4.856E-09	4.087E-09	3.519E-09	3.084E-09	2.741E-09
E	1.803E-08	1.313E-08	8.360E-09	6.056E-09	4.773E-09	3.885E-09	3.264E-09	2.806E-09	2.456E-09	2.180E-09
ESE	1.924E-08	1.387E-08	8.715E-09	6.254E-09	4.890E-09	3.957E-09	3.308E-09	2.833E-09	2.471E-09	2.186E-09
SE	2.001E-08	1.407E-08	8.532E-09	5.968E-09	4.548E-09	3.620E-09	2.985E-09	2.526E-09	2.179E-09	1.911E-09
SSE	1.314E-08	9.172E-09	5.492E-09	3.804E-09	2.874E-09	2.273E-09	1.864E-09	1.569E-09	1.348E-09	1.178E-09
S	1.582E-08	1.099E-08	6.561E-09	4.538E-09	3.423E-09	2.707E-09	2.220E-09	1.870E-09	1.608E-09	1.405E-09
SSW	1.443E-08	1.001E-08	5.965E-09	4.119E-09	3.102E-09	2.450E-09	2.007E-09	1.689E-09	1.452E-09	1.268E-09
SW	1.337E-08	9.260E-09	5.497E-09	3.787E-09	2.846E-09	2.246E-09	1.861E-09	1.564E-09	1.355E-09	1.183E-09
WSW	1.127E-08	7.797E-09	4.617E-09	3.171E-09	2.366E-09	1.862E-09	1.570E-09	1.316E-09	1.136E-09	9.889E-10
W	9.675E-09	6.726E-09	4.121E-09	2.832E-09	2.118E-09	1.668E-09	1.363E-09	1.144E-09	9.811E-10	8.553E-10
WNW	8.582E-09	6.046E-09	3.667E-09	2.563E-09	2.033E-09	1.614E-09	1.333E-09	1.125E-09	1.007E-09	8.809E-10
NW	9.389E-09	6.622E-09	4.036E-09	2.823E-09	2.258E-09	1.791E-09	1.501E-09	1.266E-09	1.100E-09	9.619E-10
NNW	1.718E-08	1.212E-08	7.752E-09	5.412E-09	4.238E-09	3.366E-09	2.772E-09	2.343E-09	2.020E-09	1.770E-09

Table 2.3-90 — {Normal Effluent Annual Average, Gamma x/Q Values for Mixed Mode Release Using 242,458 cfm Flow Rate for Special and Additional Receptors}

Downwind Sector	χ/Q (sec/m^3) Site Boundary	χ/Q (sec/m^3) Nearest Residents	χ/Q (sec/m^3) Nearest Gardens
N	1.872E-06	N/A	N/A
NNE	4.043E-06	N/A	N/A
NE	5.769E-06	N/A	N/A
ENE	2.580E-06	N/A	N/A
E	1.905E-06	N/A	N/A
ESE	1.733E-06	N/A	N/A
SE	8.150E-07	6.605E-07	6.605E-07
SSE	4.208E-07	2.810E-07	2.413E-07
S	7.118E-07	2.919E-07	2.919E-07
SSW	6.895E-07	N/A	N/A
SW	3.963E-07	3.218E-07	2.391E-07
WSW	3.261E-07	3.705E-07	3.705E-07
W	2.712E-07	1.900E-07	1.290E-07
WNW	1.171E-07	1.046E-07	8.503E-08
NW	2.580E-07	4.910E-08	4.910E-08
NNW	1.447E-06	N/A	N/A

Table 2.3-91 — {Normal Effluent Annual Average, D/Q Values for Mixed Mode Release Using 242,458 cfm Flow Rate for Grid Receptors}

Downwind Sector	D/Q (1/m^2) 0.5 miles	D/Q (1/m^2) 0.75 miles	D/Q (1/m^2) 1.0 mile	D/Q (1/m^2) 1.5 miles	D/Q (1/m^2) 2.0 miles	D/Q (1/m^2) 2.5 miles	D/Q (1/m^2) 3.0 miles	D/Q (1/m^2) 3.5 miles	D/Q (1/m^2) 4.0 miles	D/Q (1/m^2) 4.5 miles	D/Q (1/m^2) 5.0 miles
N	1.322E-08	7.391E-09	3.875E-09	1.472E-09	7.661E-10	4.653E-10	3.197E-10	2.322E-10	1.759E-10	1.390E-10	1.123E-10
NNE	2.145E-08	1.177E-08	6.016E-09	2.219E-09	1.135E-09	6.822E-10	4.657E-10	3.368E-10	2.545E-10	2.008E-10	1.622E-10
NE	3.792E-08	2.075E-08	1.057E-08	3.879E-09	1.977E-09	1.184E-09	8.068E-10	5.829E-10	4.402E-10	3.472E-10	2.804E-10
ENE	1.588E-08	8.994E-09	4.695E-09	1.763E-09	9.143E-10	5.545E-10	3.812E-10	2.773E-10	2.105E-10	1.666E-10	1.349E-10
E	1.203E-08	6.702E-09	3.472E-09	1.305E-09	6.721E-10	4.053E-10	2.774E-10	2.010E-10	1.522E-10	1.202E-10	9.720E-11
ESE	1.987E-08	1.081E-08	5.498E-09	2.033E-09	1.032E-09	6.158E-10	4.181E-10	3.012E-10	2.270E-10	1.787E-10	1.441E-10
SE	2.758E-08	1.520E-08	7.823E-09	2.943E-09	1.496E-09	8.920E-10	6.051E-10	4.355E-10	3.280E-10	2.582E-10	2.081E-10
SSE	1.508E-08	8.770E-09	4.717E-09	1.846E-09	9.593E-10	5.823E-10	3.982E-10	2.882E-10	2.179E-10	1.721E-10	1.390E-10
S	2.818E-08	1.604E-08	8.446E-09	3.275E-09	1.690E-09	1.018E-09	6.966E-10	5.050E-10	3.822E-10	3.021E-10	2.443E-10
SSW	2.181E-08	1.271E-08	6.802E-09	2.649E-09	1.380E-09	8.371E-10	5.751E-10	4.180E-10	3.172E-10	2.511E-10	2.033E-10
SW	2.151E-08	1.255E-08	6.719E-09	2.616E-09	1.357E-09	8.192E-10	5.607E-10	4.063E-10	3.075E-10	2.431E-10	1.966E-10
WSW	1.199E-08	7.502E-09	4.250E-09	1.740E-09	9.261E-10	5.680E-10	3.929E-10	2.867E-10	2.179E-10	1.729E-10	1.400E-10
W	6.673E-09	4.317E-09	2.510E-09	1.053E-09	5.700E-10	3.537E-10	2.466E-10	1.810E-10	1.382E-10	1.098E-10	8.910E-11
WNW	4.775E-09	3.015E-09	1.737E-09	7.306E-10	3.965E-10	2.468E-10	1.724E-10	1.267E-10	9.681E-11	7.725E-11	6.266E-11
NW	8.120E-09	4.833E-09	2.646E-09	1.061E-09	5.619E-10	3.445E-10	2.384E-10	1.741E-10	1.326E-10	1.052E-10	8.525E-11
NNW	1.920E-08	1.103E-08	5.871E-09	2.275E-09	1.184E-09	7.177E-10	4.927E-10	3.578E-10	2.712E-10	2.145E-10	1.735E-10

Table 2.3-92 — {Normal Effluent Annual Average, D/Q Values for Mixed Mode Release Using 242,458 cfm Flow Rate for Grid Receptors}

Downwind Sector	D/Q ($1/m^2$) 7.5 miles	D/Q ($1/m^2$) 10 miles	D/Q ($1/m^2$) 15 mile	D/Q ($1/m^2$) 20 miles	D/Q ($1/m^2$) 25 miles	D/Q ($1/m^2$) 30 miles	D/Q ($1/m^2$) 35 miles	D/Q ($1/m^2$) 40 miles	D/Q ($1/m^2$) 45 miles	D/Q ($1/m^2$) 50 miles
N	5.031E-11	3.161E-11	1.627E-11	1.009E-11	7.011E-12	5.187E-12	3.990E-12	3.183E-12	2.596E-12	2.156E-12
NNE	7.259E-11	4.579E-11	2.373E-11	1.478E-11	1.034E-11	7.696E-12	5.956E-12	4.767E-12	3.888E-12	3.234E-12
NE	1.254E-10	7.906E-11	4.100E-11	2.555E-11	1.786E-11	1.329E-11	1.030E-11	8.249E-12	6.744E-12	5.611E-12
ENE	6.088E-11	3.847E-11	2.012E-11	1.265E-11	8.954E-12	6.734E-12	5.259E-12	4.245E-12	3.491E-12	2.917E-12
E	4.350E-11	2.735E-11	1.418E-11	8.878E-12	6.223E-12	4.649E-12	3.614E-12	2.909E-12	2.388E-12	1.994E-12
ESE	6.385E-11	4.000E-11	2.053E-11	1.272E-11	8.795E-12	6.499E-12	5.015E-12	4.011E-12	3.279E-12	2.733E-12
SE	9.188E-11	5.720E-11	2.906E-11	1.793E-11	1.243E-11	9.273E-12	7.278E-12	5.937E-12	4.959E-12	4.244E-12
SSE	6.157E-11	3.806E-11	1.920E-11	1.183E-11	8.188E-12	6.096E-12	4.774E-12	3.884E-12	3.236E-12	2.763E-12
S	1.089E-10	6.795E-11	3.500E-11	2.193E-11	1.539E-11	1.158E-11	9.095E-12	7.412E-12	6.162E-12	5.223E-12
SSW	9.094E-11	5.673E-11	2.926E-11	1.839E-11	1.298E-11	9.821E-12	7.758E-12	6.356E-12	5.308E-12	4.519E-12
SW	8.744E-11	5.427E-11	2.766E-11	1.720E-11	1.198E-11	8.950E-12	7.656E-12	6.425E-12	6.883E-12	6.214E-12
WSW	6.255E-11	3.862E-11	1.952E-11	1.208E-11	8.370E-12	6.195E-12	5.790E-12	4.968E-12	5.869E-12	5.485E-12
W	4.009E-11	2.485E-11	1.266E-11	7.985E-12	5.745E-12	4.473E-12	3.663E-12	3.106E-12	2.678E-12	2.365E-12
WNW	2.827E-11	1.757E-11	9.012E-12	5.644E-12	4.309E-12	3.511E-12	3.334E-12	3.048E-12	4.026E-11	3.979E-11
NW	3.833E-11	2.395E-11	1.238E-11	7.785E-12	6.691E-12	5.943E-12	2.517E-11	2.703E-11	5.502E-11	5.402E-11
NNW	7.758E-11	4.832E-11	2.489E-11	1.618E-11	2.645E-11	3.090E-11	3.475E-11	3.701E-11	3.749E-11	3.831E-11

Table 2.3-93 — {Normal Effluent Annual Average, D/Q Values for Mixed Mode Release Using 242,458 cfm Flow Rate for Special and Additional Receptors}

Downwind Sector	D/Q ($1/m^2$) Site Boundary	D/Q ($1/m^2$) Nearest Residents	D/Q ($1/m^2$) Nearest Gardens
N	1.895E-08	N/A	N/A
NNE	5.101E-08	N/A	N/A
NE	8.617E-08	N/A	N/A
ENE	3.134E-08	N/A	N/A
E	1.978E-08	N/A	N/A
ESE	2.465E-08	N/A	N/A
SE	1.060E-08	8.234E-09	8.234E-09
SSE	4.730E-09	2.960E-09	2.475E-09
S	1.186E-08	4.068E-09	4.068E-09
SSW	9.686E-09	N/A	N/A
SW	5.493E-09	4.333E-09	3.074E-09
WSW	3.580E-09	4.115E-09	4.115E-09
W	2.159E-09	1.465E-09	9.487E-10
WNW	7.963E-10	6.835E-10	5.336E-10
NW	2.465E-09	3.322E-10	3.322E-10
NNW	2.064E-08	N/A	N/A

Table 2.3-94 — {Specific Locations of Receptors of Interest}

Receptor	Distance Downwind m (ft)	Sector
Site Boundary	623.4 (2045.3)	N
Site Boundary	429.4 (1408.8)	NNE
Site Boundary	443.3 (1454.4)	NE
Site Boundary	471.0 (1545.3)	ENE
Site Boundary	554.1 (1817.9)	E
Site Boundary	692.7 (2272.6)	ESE
Site Boundary	1413.0 (4635.8)	SE
Site Boundary	1607.0 (5272.3)	SSE
Site Boundary	1385.0 (4544.0)	S
Site Boundary	1371.0 (4498.0)	SSW
Site Boundary	1759.0 (5771.0)	SW
Site Boundary	1745.0 (5725.1)	WSW
Site Boundary	1732.0 (5682.4)	W
Site Boundary	2313.0 (7588.6)	WNW
Site Boundary	1662.0 (5452.8)	NW
Site Boundary	761.9 (2499.7)	NNW
Nearest Resident	1574.0 (5164.0)	SE
Nearest Resident	1969.0 (6460.0)	SSE
Nearest Resident	2206.0 (7237.5)	S
Nearest Resident	1945.0 (6381.2)	SW
Nearest Resident	1634.0 (5360.9)	WSW
Nearest Resident	2074.0 (6804.5)	W
Nearest Resident	2485.0 (8152.9)	WNW
Nearest Resident	4097.0 (13441.6)	NW
Nearest Garden	1574.0 (5164.0)	SE
Nearest Garden	2130.0 (6988.2)	SSE
Nearest Garden	2206.0 (7237.5)	S
Nearest Garden	2735.0 (8973.1)	SSW
Nearest Garden	2256.0 (7401.6)	SW
Nearest Garden	1634.0 (5360.9)	WSW
Nearest Garden	2529.0 (8297.2)	W
Nearest Garden	2795.0 (9169.9)	WNW
Nearest Garden	4097.0 (13441.6)	NW

Table 2.3-95 — Calvert Cliffs Nuclear Power Station Monthly Mean Temperatures (1987-2006)

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
° F	36.5	38.3	44.7	54.8	63.2	71.7	76.5	75.3	68.9	58.2	50.2	39.9	56.5
° C	2.5	3.5	7.1	12.7	17.3	22.1	24.7	24.1	20.5	14.6	10.1	4.4	13.6

Table 2.3-96 — Calvert Cliffs Nuclear Power Station Monthly and Annual Precipitation (1992-2006)

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
in	2.11	2.16	3.58	2.90	2.87	2.82	3.04	1.95	2.80	2.42	2.74	2.20	31.58
mm	53.59	54.86	90.93	73.66	72.90	71.63	77.22	49.53	71.12	61.47	69.60	55.88	802.13

Table 2.3-97 — Monthly Atmospheric Stability Summary (2000 through 2005)

Stability Class	**Frequency of Occurrence by Percent**											
	Jan	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
A	8.04	10.15	12.30	12.22	13.37	13.90	12.47	11.99	11.82	12.81	13.17	8.36
B	3.36	4.31	3.42	4.13	5.12	5.54	5.87	5.84	5.49	3.98	3.59	4.22
C	4.20	3.94	4.18	5.36	5.50	6.02	6.74	6.13	5.78	4.36	3.68	4.36
D	40.68	34.95	37.34	39.95	35.50	30.58	30.65	28.67	34.31	34.00	30.30	35.54
E	31.35	32.25	29.22	25.84	23.34	22.12	23.30	27.43	22.42	20.20	28.56	36.05
F	8.88	10.57	9.79	7.77	10.54	12.74	11.20	11.97	10.02	10.39	11.67	8.73
G	3.50	3.84	3.76	4.74	6.63	9.10	9.77	7.97	10.16	14.26	9.03	2.74
Stability Class	Frequency of Occurrence by Number of Hours											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
A	345	410	533	497	595	600	540	530	499	567	569	360
B	144	174	148	168	228	239	254	258	232	176	155	182
C	180	159	181	218	245	260	292	271	244	193	159	188
D	1745	1412	1618	1625	1580	1320	1327	1267	1449	1505	1309	1531
E	1345	1303	1266	1051	1039	955	1009	1212	947	894	1234	1553
F	381	427	424	316	469	550	485	529	423	460	504	376
G	150	155	163	193	295	393	423	352	429	631	390	118

Table 2.3-98 — {CCNPP 33' (10-m) 2000-2006 Annual Joint Frequency Distribution Table}

(Page 1 of 8)

CC JAN00-DEC06 MET DATA JOINT FREQUENCY DISTRIBUTION (60-METER TOWER)

33.0 FT WIND DATA STABILITY CLASS A CLASS FREQUENCY (PERCENT) = 10.89

WIND DIRECTION FROM

SPEED mps	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VRBL	TOTAL	SPEED MPH
LT .2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	LT .4
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
.2- .4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	.4 - .9
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
.5- 1.0	0	0	0	0	2	0	0	1	0	1	1	0	0	1	0	0	0	6	1.0 – 2.2
(1)	.00	.00	.00	.00	.03	.00	.00	.02	.00	.02	.02	.00	.00	.02	.00	.00	.00	.09	
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	
1.1- 1.5	3	3	4	8	4	0	5	2	3	12	9	6	8	4	1	1	0	73	2.3 – 3.4
(1)	.05	.05	.06	.12	.06	.00	.08	.03	.05	.18	.14	.09	.12	.06	.02	.02	.00	1.11	
(2)	.00	.00	.01	.01	.01	.00	.01	.00	.00	.02	.01	.01	.01	.01	.00	.00	.00	.12	
1.6- 2.0	10	29	20	22	14	13	7	13	11	36	54	27	14	5	5	7	0	287	3.5 – 4.5
(1)	.15	.44	.31	.34	.21	.20	.11	.20	.17	.55	.82	.41	.21	.08	.08	.11	.00	4.38	
(2)	.02	.05	.03	.04	.02	.02	.01	.02	.02	.06	.09	.04	.02	.01	.01	.01	.00	.48	
2.1- 3.0	139	178	121	71	83	67	72	84	84	193	297	178	66	38	29	19	0	1719	4.6 – 6.7
(1)	2.12	2.72	1.85	1.08	1.27	1.02	1.10	1.28	1.28	2.95	4.53	2.72	1.01	.58	.44	.29	.00	26.24	
(2)	.23	.30	.20	.12	.14	.11	.12	.14	.14	.32	.49	.30	.11	.06	.05	.03	.00	2.86	
3.1- 4.0	317	280	120	21	31	39	112	168	73	152	329	215	99	92	76	60	0	2184	6.8 – 8.9
(1)	4.84	4.27	1.83	.32	.47	.60	1.71	2.56	1.11	2.32	5.02	3.28	1.51	1.40	1.16	.92	.00	33.34	
(2)	.53	.47	.20	.03	.05	.06	.19	.28	.12	.25	.55	.36	.16	.15	.13	.10	.00	3.63	
4.1- 5.0	179	105	49	9	5	10	54	110	36	88	183	84	76	117	136	49	0	1290	9.0 – 11.2
(1)	2.73	1.60	.75	.14	.08	.15	.82	1.68	.55	1.34	2.79	1.28	1.16	1.79	2.08	.75	.00	19.69	
(2)	.30	.17	.08	.01	.01	.02	.09	.18	.06	.15	.30	.14	.13	.19	.23	.08	.00	2.14	
5.1- 6.0	70	24	28	1	0	1	12	53	6	35	72	26	40	120	122	31	0	641	11.3 – 13.4
(1)	1.07	.37	.43	.02	.00	.02	.18	.81	.09	.53	1.10	.40	.61	1.83	1.86	.47	.00	9.78	
(2)	.12	.04	.05	.00	.00	.00	.02	.09	.01	.06	.12	.04	.07	.20	.20	.05	.00	1.07	
6.1- 8.0	16	1	15	3	0	0	0	28	1	9	19	13	17	80	106	16	0	324	13.5 – 17.9
(1)	.24	.02	.23	.05	.00	.00	.00	.43	.02	.14	.29	.20	.26	1.22	1.62	.24	.00	4.95	
(2)	.03	.00	.02	.00	.00	.00	.00	.05	.00	.01	.03	.02	.03	.13	.18	.03	.00	.54	
8.1-10.0	0	0	0	0	0	0	0	0	0	2	0	0	2	13	8	0	0	25	18.0 – 22.4
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.03	.00	.00	.03	.20	.12	.00	.00	.38	
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.02	.01	.00	.00	.04	
10.1-89.5	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	2	22.5 – 200.2
(1)	.00	.00	.02	.00	.00	.00	.00	.00	.00	.00	.00	.00	.02	.00	.00	.00	.00	.03	
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
ALL SPEEDS	734	620	358	135	139	130	262	459	214	528	964	549	323	470	483	183	0	6551	
(1)	11.20	9.46	5.46	2.06	2.12	1.98	4.00	7.01	3.27	8.06	14.72	8.38	4.93	7.17	7.37	2.79	.00	100.00	
(2)	1.22	1.03	.60	.22	.23	.22	.44	.76	.36	.88	1.60	.91	.54	.78	.80	.30	.00	10.89	

(1)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PAGE

(2)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PERIOD

Table 2.3-98 — {CCNPP 33' (10-m) 2000-2006 Annual Joint Frequency Distribution Table}

(Page 2 of 8)

CC JAN00-DEC06 MET DATA JOINT FREQUENCY DISTRIBUTION (60-METER TOWER)
33.0 FT WIND DATA STABILITY CLASS B CLASS FREQUENCY (PERCENT) = 4.50

SPEED mps	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VRBL	TOTAL	SPEED MPH
	WIND DIRECTION FROM																		
LT .2	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	LT .4
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.04	.00	.00	.00	.00	.00	.04	
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
.2- .4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	.4 - .9
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
.5- 1.0	1	0	1	0	2	0	1	1	1	0	0	0	0	0	0	1	0	8	1.0 – 2.2
(1)	.04	.00	.04	.00	.07	.00	.04	.04	.04	.00	.00	.00	.00	.00	.00	.04	.00	.30	
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	
1.1- 1.5	3	4	3	2	9	1	4	2	3	5	7	3	4	3	0	0	0	53	2.3 – 3.4
(1)	.11	.15	.11	.07	.33	.04	.15	.07	.11	.18	.26	.11	.15	.11	.00	.00	.00	1.96	
(2)	.00	.01	.00	.00	.01	.00	.01	.00	.00	.01	.01	.00	.01	.00	.00	.00	.00	.09	
1.6- 2.0	12	12	27	24	13	20	13	3	13	10	24	20	10	6	4	6	0	217	3.5 – 4.5
(1)	.44	.44	1.00	.89	.48	.74	.48	.11	.48	.37	.89	.74	.37	.22	.15	.22	.00	8.01	
(2)	.02	.02	.04	.04	.02	.03	.02	.00	.02	.02	.04	.03	.02	.01	.01	.01	.00	.36	
2.1- 3.0	103	132	74	70	53	36	48	44	40	58	69	70	46	31	17	15	0	906	4.6 – 6.7
(1)	3.80	4.87	2.73	2.58	1.96	1.33	1.77	1.62	1.48	2.14	2.55	2.58	1.70	1.14	.63	.55	.00	33.44	
(2)	.17	.22	.12	.12	.09	.06	.08	.07	.07	.10	.11	.12	.08	.05	.03	.02	.00	1.51	
3.1- 4.0	122	92	49	16	8	12	53	86	16	44	86	58	33	34	33	18	0	760	6.8 – 8.9
(1)	4.50	3.40	1.81	.59	.30	.44	1.96	3.17	.59	1.62	3.17	2.14	1.22	1.26	1.22	.66	.00	28.05	
(2)	.20	.15	.08	.03	.01	.02	.09	.14	.03	.07	.14	.10	.05	.06	.05	.03	.00	1.26	
4.1- 5.0	58	18	31	3	1	3	15	31	10	22	42	23	26	27	45	29	0	384	9.0 – 11.2
(1)	2.14	.66	1.14	.11	.04	.11	.55	1.14	.37	.81	1.55	.85	.96	1.00	1.66	1.07	.00	14.17	
(2)	.10	.03	.05	.00	.00	.00	.02	.05	.02	.04	.07	.04	.04	.04	.07	.05	.00	.64	
5.1- 6.0	43	10	17	4	0	1	4	21	3	5	17	4	14	26	44	15	0	228	11.3 – 13.4
(1)	1.59	.37	.63	.15	.00	.04	.15	.78	.11	.18	.63	.15	.52	.96	1.62	.55	.00	8.42	
(2)	.07	.02	.03	.01	.00	.00	.01	.03	.00	.01	.03	.01	.02	.04	.07	.02	.00	.38	
6.1- 8.0	10	2	4	4	0	0	2	12	1	4	6	5	5	38	38	10	0	141	13.5 – 17.9
(1)	.37	.07	.15	.15	.00	.00	.07	.44	.04	.15	.22	.18	.18	1.40	1.40	.37	.00	5.20	
(2)	.02	.00	.01	.01	.00	.00	.00	.02	.00	.01	.01	.01	.01	.06	.06	.02	.00	.23	
8.1-10.0	1	0	0	0	0	0	0	1	0	0	0	0	0	1	7	0	0	10	18.0 – 22.4
(1)	.04	.00	.00	.00	.00	.00	.00	.04	.00	.00	.00	.00	.00	.04	.26	.00	.00	.37	
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	.00	.00	.02	
10.1-89.5	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	22.5 – 200.2
(1)	.04	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.04	
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
ALL SPEEDS	354	270	206	123	86	73	140	201	87	148	251	184	138	166	188	94	0	2709	
(1)	13.07	9.97	7.60	4.54	3.17	2.69	5.17	7.42	3.21	5.46	9.27	6.79	5.09	6.13	6.94	3.47	.00	100.00	
(2)	.59	.45	.34	.20	.14	.12	.23	.33	.14	.25	.42	.31	.23	.28	.31	.16	.00	4.50	

(1)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PAGE
(2)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PERIOD

Table 2.3-98 — {CCNPP 33' (10-m) 2000-2006 Annual Joint Frequency Distribution Table}

(Page 3 of 8)

CC JAN00-DEC06 MET DATA JOINT FREQUENCY DISTRIBUTION (60-METER TOWER)

33.0 FT WIND DATA STABILITY CLASS C CLASS FREQUENCY (PERCENT) = 5.09

WIND DIRECTION FROM

SPEED mps	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VRBL	TOTAL	SPEED MPH
LT .2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	LT .4
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
.2- .4	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	.4 - .9
(1)	.00	.00	.00	.00	.00	.03	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.03	
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
.5- 1.0	1	1	1	0	3	0	2	1	2	1	3	2	3	1	1	1	0	23	1.0 – 2.2
(1)	.03	.03	.03	.00	.10	.00	.07	.03	.07	.03	.10	.07	.10	.03	.03	.03	.00	.75	
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.04	
1.1- 1.5	5	14	8	13	11	7	6	5	3	8	11	12	8	6	2	4	0	123	2.3 – 3.4
(1)	.16	.46	.26	.42	.36	.23	.20	.16	.10	.26	.36	.39	.26	.20	.07	.13	.00	4.02	
(2)	.01	.02	.01	.02	.02	.01	.01	.01	.00	.01	.02	.02	.01	.01	.00	.01	.00	.20	
1.6- 2.0	18	41	23	30	39	21	19	16	16	11	31	24	16	7	8	4	0	324	3.5 – 4.5
(1)	.59	1.34	.75	.98	1.27	.69	.62	.52	.52	.36	1.01	.78	.52	.23	.26	.13	.00	10.58	
(2)	.03	.07	.04	.05	.06	.03	.03	.03	.03	.02	.05	.04	.03	.01	.01	.01	.00	.54	
2.1- 3.0	132	163	107	79	58	44	56	63	39	60	108	76	48	38	36	25	0	1132	4.6 – 6.7
(1)	4.31	5.32	3.49	2.58	1.89	1.44	1.83	2.06	1.27	1.96	3.53	2.48	1.57	1.24	1.18	.82	.00	36.97	
(2)	.22	.27	.18	.13	.10	.07	.09	.10	.06	.10	.18	.13	.08	.06	.06	.04	.00	1.88	
3.1- 4.0	126	71	76	19	13	8	18	92	26	32	75	56	43	32	47	30	0	764	6.8 – 8.9
(1)	4.11	2.32	2.48	.62	.42	.26	.59	3.00	.85	1.05	2.45	1.83	1.40	1.05	1.53	.98	.00	24.95	
(2)	.21	.12	.13	.03	.02	.01	.03	.15	.04	.05	.12	.09	.07	.05	.08	.05	.00	1.27	
4.1- 5.0	56	22	35	7	3	2	9	44	8	18	35	27	15	33	46	26	0	386	9.0 – 11.2
(1)	1.83	.72	1.14	.23	.10	.07	.29	1.44	.26	.59	1.14	.88	.49	1.08	1.50	.85	.00	12.61	
(2)	.09	.04	.06	.01	.00	.00	.01	.07	.01	.03	.06	.04	.02	.05	.08	.04	.00	.64	
5.1- 6.0	15	10	18	9	0	0	3	15	2	2	19	5	8	24	31	10	0	171	11.3 – 13.4
(1)	.49	.33	.59	.29	.00	.00	.10	.49	.07	.07	.62	.16	.26	.78	1.01	.33	.00	5.58	
(2)	.02	.02	.03	.01	.00	.00	.00	.02	.00	.00	.03	.01	.01	.04	.05	.02	.00	.28	
6.1- 8.0	18	4	7	5	0	0	0	5	0	2	4	0	5	27	41	9	0	127	13.5 – 17.9
(1)	.59	.13	.23	.16	.00	.00	.00	.16	.00	.07	.13	.00	.16	.88	1.34	.29	.00	4.15	
(2)	.03	.01	.01	.01	.00	.00	.00	.01	.00	.00	.01	.00	.01	.04	.07	.01	.00	.21	
8.1-10.0	2	0	2	0	0	0	0	0	0	0	0	0	0	3	3	1	0	11	18.0 – 22.4
(1)	.07	.00	.07	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.10	.10	.03	.00	.36	
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.02	
10.1-89.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22.5 – 200.2
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
ALL SPEEDS	373	326	277	162	127	83	113	241	96	134	286	202	146	171	215	110	0	3062	
(1)	12.18	10.65	9.05	5.29	4.15	2.71	3.69	7.87	3.14	4.38	9.34	6.60	4.77	5.58	7.02	3.59	.00	100.00	
(2)	.62	.54	.46	.27	.21	.14	.19	.40	.16	.22	.48	.34	.24	.28	.36	.18	.00	5.09	

(1)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PAGE

(2)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PERIOD

Table 2.3-98 — {CCNPP 33' (10-m) 2000-2006 Annual Joint Frequency Distribution Table}

(Page 4 of 8)

CC JAN00-DEC06 MET DATA JOINT FREQUENCY DISTRIBUTION (60-METER TOWER)

33.0 FT WIND DATA STABILITY CLASS D CLASS FREQUENCY (PERCENT) = 33.91

	WIND DIRECTION FROM																		
SPEED mps	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VRBL	TOTAL	SPEED MPH
LT .2	0	0	0	0	1	0	0	0	0	2	3	0	0	1	2	1	0	10	LT .4
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	.01	.00	.00	.00	.01	.00	.00	.05	
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.02	
.2- .4	1	1	0	2	0	0	1	1	2	2	2	2	4	5	0	1	0	24	.4 - .9
(1)	.00	.00	.00	.01	.00	.00	.00	.00	.01	.01	.01	.01	.02	.02	.00	.00	.00	.12	
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	.01	.00	.00	.00	.04	
.5- 1.0	33	35	41	26	41	46	34	33	36	50	57	35	26	40	23	36	0	592	1.0 – 2.2
(1)	.16	.17	.20	.13	.20	.23	.17	.16	.18	.25	.28	.17	.13	.20	.11	.18	.00	2.90	
(2)	.05	.06	.07	.04	.07	.08	.06	.05	.06	.08	.09	.06	.04	.07	.04	.06	.00	.98	
1.1- 1.5	89	92	88	100	152	101	75	79	72	85	109	69	66	46	51	50	0	1324	2.3 – 3.4
(1)	.44	.45	.43	.49	.75	.50	.37	.39	.35	.42	.53	.34	.32	.23	.25	.25	.00	6.49	
(2)	.15	.15	.15	.17	.25	.17	.12	.13	.12	.14	.18	.11	.11	.08	.08	.08	.00	2.20	
1.6- 2.0	173	244	172	219	225	159	144	137	138	139	158	108	81	64	88	84	0	2333	3.5 – 4.5
(1)	.85	1.20	.84	1.07	1.10	.78	.71	.67	.68	.68	.77	.53	.40	.31	.43	.41	.00	11.44	
(2)	.29	.41	.29	.36	.37	.26	.24	.23	.23	.23	.26	.18	.13	.11	.15	.14	.00	3.88	
2.1- 3.0	487	577	448	573	434	274	304	463	284	242	375	282	184	171	287	303	0	5688	4.6 – 6.7
(1)	2.39	2.83	2.20	2.81	2.13	1.34	1.49	2.27	1.39	1.19	1.84	1.38	.90	.84	1.41	1.49	.00	27.89	
(2)	.81	.96	.74	.95	.72	.46	.51	.77	.47	.40	.62	.47	.31	.28	.48	.50	.00	9.45	
3.1- 4.0	470	352	470	445	186	116	153	406	179	154	294	191	114	150	374	452	0	4506	6.8 – 8.9
(1)	2.30	1.73	2.30	2.18	.91	.57	.75	1.99	.88	.76	1.44	.94	.56	.74	1.83	2.22	.00	22.09	
(2)	.78	.59	.78	.74	.31	.19	.25	.67	.30	.26	.49	.32	.19	.25	.62	.75	.00	7.49	
4.1- 5.0	384	285	403	243	48	19	53	221	80	80	188	80	65	144	334	324	0	2951	9.0 – 11.2
(1)	1.88	1.40	1.98	1.19	.24	.09	.26	1.08	.39	.39	.92	.39	.32	.71	1.64	1.59	.00	14.47	
(2)	.64	.47	.67	.40	.08	.03	.09	.37	.13	.13	.31	.13	.11	.24	.56	.54	.00	4.91	
5.1- 6.0	265	187	267	122	1	4	19	118	22	32	85	23	31	118	267	135	0	1696	11.3 – 13.4
(1)	1.30	.92	1.31	.60	.00	.02	.09	.58	.11	.16	.42	.11	.15	.58	1.31	.66	.00	8.31	
(2)	.44	.31	.44	.20	.00	.01	.03	.20	.04	.05	.14	.04	.05	.20	.44	.22	.00	2.82	
6.1- 8.0	204	110	211	53	3	2	13	62	17	17	15	12	15	133	162	49	0	1078	13.5 – 17.9
(1)	1.00	.54	1.03	.26	.01	.01	.06	.30	.08	.08	.07	.06	.07	.65	.79	.24	.00	5.29	
(2)	.34	.18	.35	.09	.00	.00	.02	.10	.03	.03	.02	.02	.02	.22	.27	.08	.00	1.79	
8.1-10.0	34	11	45	10	1	0	3	9	1	2	1	1	4	22	21	3	0	168	18.0 – 22.4
(1)	.17	.05	.22	.05	.00	.00	.01	.04	.00	.01	.00	.00	.02	.11	.10	.01	.00	.82	
(2)	.06	.02	.07	.02	.00	.00	.00	.01	.00	.00	.00	.00	.01	.04	.03	.00	.00	.28	
10.1-89.5	4	2	13	3	1	0	1	1	0	0	0	0	0	1	1	0	0	27	22.5 – 200.2
(1)	.02	.01	.06	.01	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.13	
(2)	.01	.00	.02	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.04	
ALL SPEEDS	2144	1896	2158	1796	1093	721	800	1530	831	805	1287	803	590	895	1610	1438	0	20397	
(1)	10.51	9.30	10.58	8.81	5.36	3.53	3.92	7.50	4.07	3.95	6.31	3.94	2.89	4.39	7.89	7.05	.00	100.00	
(2)	3.56	3.15	3.59	2.99	1.82	1.20	1.33	2.54	1.38	1.34	2.14	1.33	.98	1.49	2.68	2.39	.00	33.91	

(1)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PAGE

(2)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PERIOD

Table 2.3-98 — {CCNPP 33' (10-m) 2000-2006 Annual Joint Frequency Distribution Table}

(Page 5 of 8)

CC JAN00-DEC06 MET DATA JOINT FREQUENCY DISTRIBUTION (60-METER TOWER)
33.0 FT WIND DATA STABILITY CLASS E CLASS FREQUENCY (PERCENT) = 27.57

WIND DIRECTION FROM

SPEED mps	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VRBL	TOTAL	SPEED MPH
LT .2	3	3	0	0	2	1	4	6	7	3	12	8	5	1	2	1	0	58	LT .4
(1)	.02	.02	.00	.00	.01	.01	.02	.04	.04	.02	.07	.05	.03	.01	.01	.01	.00	.35	
(2)	.00	.00	.00	.00	.00	.00	.01	.01	.01	.00	.02	.01	.01	.00	.00	.00	.00	.10	
.2- .4	3	2	7	2	4	7	8	10	17	19	10	13	15	7	8	1	0	133	.4 - .9
(1)	.02	.01	.04	.01	.02	.04	.05	.06	.10	.11	.06	.08	.09	.04	.05	.01	.00	.80	
(2)	.00	.00	.01	.00	.01	.01	.01	.02	.03	.03	.02	.02	.02	.01	.01	.00	.00	.22	
.5- 1.0	54	42	35	40	59	65	67	83	120	132	137	100	81	52	63	63	0	1193	1.0 – 2.2
(1)	.33	.25	.21	.24	.36	.39	.40	.50	.72	.80	.83	.60	.49	.31	.38	.38	.00	7.19	
(2)	.09	.07	.06	.07	.10	.11	.11	.14	.20	.22	.23	.17	.13	.09	.10	.10	.00	1.98	
1.1- 1.5	110	107	75	64	68	81	98	144	235	299	278	165	134	127	152	84	0	2221	2.3 – 3.4
(1)	.66	.65	.45	.39	.41	.49	.59	.87	1.42	1.80	1.68	.99	.81	.77	.92	.51	.00	13.39	
(2)	.18	.18	.12	.11	.11	.13	.16	.24	.39	.50	.46	.27	.22	.21	.25	.14	.00	3.69	
1.6- 2.0	137	141	63	76	99	70	115	184	296	309	319	204	178	214	233	175	0	2813	3.5 – 4.5
(1)	.83	.85	.38	.46	.60	.42	.69	1.11	1.78	1.86	1.92	1.23	1.07	1.29	1.40	1.05	.00	16.96	
(2)	.23	.23	.10	.13	.16	.12	.19	.31	.49	.51	.53	.34	.30	.36	.39	.29	.00	4.68	
2.1- 3.0	244	213	134	101	105	71	102	270	566	630	871	364	281	354	657	365	0	5328	4.6 – 6.7
(1)	1.47	1.28	.81	.61	.63	.43	.61	1.63	3.41	3.80	5.25	2.19	1.69	2.13	3.96	2.20	.00	32.12	
(2)	.41	.35	.22	.17	.17	.12	.17	.45	.94	1.05	1.45	.61	.47	.59	1.09	.61	.00	8.86	
3.1- 4.0	162	100	88	38	16	16	36	157	234	360	775	162	123	182	393	221	0	3063	6.8 – 8.9
(1)	.98	.60	.53	.23	.10	.10	.22	.95	1.41	2.17	4.67	.98	.74	1.10	2.37	1.33	.00	18.47	
(2)	.27	.17	.15	.06	.03	.03	.06	.26	.39	.60	1.29	.27	.20	.30	.65	.37	.00	5.09	
4.1- 5.0	78	36	33	6	8	5	11	78	77	163	292	54	47	110	119	78	0	1195	9.0 – 11.2
(1)	.47	.22	.20	.04	.05	.03	.07	.47	.46	.98	1.76	.33	.28	.66	.72	.47	.00	7.20	
(2)	.13	.06	.05	.01	.01	.01	.02	.13	.13	.27	.49	.09	.08	.18	.20	.13	.00	1.99	
5.1- 6.0	34	15	7	0	2	1	5	30	23	56	94	12	18	48	44	18	0	407	11.3 – 13.4
(1)	.20	.09	.04	.00	.01	.01	.03	.18	.14	.34	.57	.07	.11	.29	.27	.11	.00	2.45	
(2)	.06	.02	.01	.00	.00	.00	.01	.05	.04	.09	.16	.02	.03	.08	.07	.03	.00	.68	
6.1- 8.0	13	1	2	2	0	1	4	25	9	12	16	3	6	22	14	4	0	134	13.5 – 17.9
(1)	.08	.01	.01	.01	.00	.01	.02	.15	.05	.07	.10	.02	.04	.13	.08	.02	.00	.81	
(2)	.02	.00	.00	.00	.00	.00	.01	.04	.01	.02	.03	.00	.01	.04	.02	.01	.00	.22	
8.1-10.0	7	1	0	0	0	0	1	5	0	0	0	2	0	6	2	4	0	28	18.0 – 22.4
(1)	.04	.01	.00	.00	.00	.00	.01	.03	.00	.00	.00	.01	.00	.04	.01	.02	.00	.17	
(2)	.01	.00	.00	.00	.00	.00	.00	.01	.00	.00	.00	.00	.00	.01	.00	.01	.00	.05	
10.1-89.5	0	0	8	2	0	2	2	0	0	0	0	0	0	1	0	0	0	15	22.5 – 200.2
(1)	.00	.00	.05	.01	.00	.01	.01	.00	.00	.00	.00	.00	.00	.01	.00	.00	.00	.09	
(2)	.00	.00	.01	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.02	
ALL SPEEDS	845	661	452	331	363	320	453	992	1584	1983	2804	1087	888	1124	1687	1014	0	16588	
(1)	5.09	3.98	2.72	2.00	2.19	1.93	2.73	5.98	9.55	11.95	16.90	6.55	5.35	6.78	10.17	6.11	.00	100.00	
(2)	1.40	1.10	.75	.55	.60	.53	.75	1.65	2.63	3.30	4.66	1.81	1.48	1.87	2.80	1.69	.00	27.57	

(1)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PAGE
(2)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PERIOD

Table 2.3-98 — {CCNPP 33' (10-m) 2000-2006 Annual Joint Frequency Distribution Table}

(Page 6 of 8)

CC JAN00-DEC06 MET DATA JOINT FREQUENCY DISTRIBUTION (60-METER TOWER)

33.0 FT WIND DATA STABILITY CLASS F CLASS FREQUENCY (PERCENT) = 10.52

WIND DIRECTION FROM

SPEED mps	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VRBL	TOTAL	SPEED MPH
LT .2	0	4	2	2	2	2	3	2	8	9	9	9	3	4	4	1	0	64	LT .4
(1)	.00	.06	.03	.03	.03	.03	.05	.03	.13	.14	.14	.14	.05	.06	.06	.02	.00	1.01	
(2)	.00	.01	.00	.00	.00	.00	.00	.00	.01	.01	.01	.01	.00	.01	.01	.00	.00	.11	
.2- .4	0	2	6	2	9	8	8	12	11	19	11	5	7	10	1	6	0	117	.4 - .9
(1)	.00	.03	.09	.03	.14	.13	.13	.19	.17	.30	.17	.08	.11	.16	.02	.09	.00	1.85	
(2)	.00	.00	.01	.00	.01	.01	.01	.02	.02	.03	.02	.01	.01	.02	.00	.01	.00	.19	
.5- 1.0	31	29	41	27	22	41	30	55	104	150	179	110	82	71	28	32	0	1032	1.0 – 2.2
(1)	.49	.46	.65	.43	.35	.65	.47	.87	1.64	2.37	2.83	1.74	1.30	1.12	.44	.51	.00	16.31	
(2)	.05	.05	.07	.04	.04	.07	.05	.09	.17	.25	.30	.18	.14	.12	.05	.05	.00	1.72	
1.1- 1.5	25	27	24	16	15	24	36	83	216	373	342	177	104	127	71	30	0	1690	2.3 – 3.4
(1)	.40	.43	.38	.25	.24	.38	.57	1.31	3.41	5.89	5.40	2.80	1.64	2.01	1.12	.47	.00	26.71	
(2)	.04	.04	.04	.03	.02	.04	.06	.14	.36	.62	.57	.29	.17	.21	.12	.05	.00	2.81	
1.6- 2.0	20	26	13	18	6	6	27	85	187	344	374	190	135	154	107	24	0	1716	3.5 – 4.5
(1)	.32	.41	.21	.28	.09	.09	.43	1.34	2.96	5.44	5.91	3.00	2.13	2.43	1.69	.38	.00	27.12	
(2)	.03	.04	.02	.03	.01	.01	.04	.14	.31	.57	.62	.32	.22	.26	.18	.04	.00	2.85	
2.1- 3.0	23	37	12	9	5	1	15	38	104	229	458	172	92	135	132	11	0	1473	4.6 – 6.7
(1)	.36	.58	.19	.14	.08	.02	.24	.60	1.64	3.62	7.24	2.72	1.45	2.13	2.09	.17	.00	23.28	
(2)	.04	.06	.02	.01	.01	.00	.02	.06	.17	.38	.76	.29	.15	.22	.22	.02	.00	2.45	
3.1- 4.0	2	9	2	2	0	0	0	1	12	25	81	16	6	5	12	1	0	174	6.8 – 8.9
(1)	.03	.14	.03	.03	.00	.00	.00	.02	.19	.40	1.28	.25	.09	.08	.19	.02	.00	2.75	
(2)	.00	.01	.00	.00	.00	.00	.00	.00	.02	.04	.13	.03	.01	.01	.02	.00	.00	.29	
4.1- 5.0	3	4	3	8	2	0	0	0	1	2	11	0	1	0	2	0	0	37	9.0 – 11.2
(1)	.05	.06	.05	.13	.03	.00	.00	.00	.02	.03	.17	.00	.02	.00	.03	.00	.00	.58	
(2)	.00	.01	.00	.01	.00	.00	.00	.00	.00	.00	.02	.00	.00	.00	.00	.00	.00	.06	
5.1- 6.0	5	1	2	6	2	0	0	0	0	0	2	0	1	0	0	2	0	21	11.3 – 13.4
(1)	.08	.02	.03	.09	.03	.00	.00	.00	.00	.00	.03	.00	.02	.00	.00	.03	.00	.33	
(2)	.01	.00	.00	.01	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.03	
6.1- 8.0	1	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	13.5 – 17.9
(1)	.02	.02	.03	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.06	
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	
8.1-10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18.0 – 22.4
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
10.1-89.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22.5 – 200.2
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
ALL SPEEDS	110	140	107	90	63	82	119	276	643	1151	1467	679	431	506	357	107	0	6328	
(1)	1.74	2.21	1.69	1.42	1.00	1.30	1.88	4.36	10.16	18.19	23.18	10.73	6.81	8.00	5.64	1.69	.00	100.00	
(2)	.18	.23	.18	.15	.10	.14	.20	.46	1.07	1.91	2.44	1.13	.72	.84	.59	.18	.00	10.52	

(1)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PAGE

(2)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PERIOD

Table 2.3-98 — {CCNPP 33' (10-m) 2000-2006 Annual Joint Frequency Distribution Table}

(Page 7 of 8)

CC JAN00-DEC06 MET DATA JOINT FREQUENCY DISTRIBUTION (60-METER TOWER)
33.0 FT WIND DATA STABILITY CLASS G CLASS FREQUENCY (PERCENT) = 7.52

	WIND DIRECTION FROM																		
SPEED mps	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VRBL	TOTAL	SPEED MPH
LT .2	0	1	1	2	2	1	2	3	9	5	12	15	3	1	2	2	0	61	LT .4
(1)	.00	.02	.02	.04	.04	.02	.04	.07	.20	.11	.27	.33	.07	.02	.04	.04	.00	1.35	
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.01	.01	.02	.02	.00	.00	.00	.00	.00	.10	
.2- .4	2	0	2	3	1	7	3	6	16	23	24	18	18	7	7	3	0	140	.4 - .9
(1)	.04	.00	.04	.07	.02	.15	.07	.13	.35	.51	.53	.40	.40	.15	.15	.07	.00	3.09	
(2)	.00	.00	.00	.00	.00	.01	.00	.01	.03	.04	.04	.03	.03	.01	.01	.00	.00	.23	
.5- 1.0	15	4	9	12	9	12	9	30	64	119	193	196	162	108	21	12	0	975	1.0 – 2.2
(1)	.33	.09	.20	.27	.20	.27	.20	.66	1.41	2.63	4.27	4.33	3.58	2.39	.46	.27	.00	21.55	
(2)	.02	.01	.01	.02	.01	.02	.01	.05	.11	.20	.32	.33	.27	.18	.03	.02	.00	1.62	
1.1- 1.5	6	6	9	8	2	6	7	23	119	393	488	270	167	126	18	3	0	1651	2.3 – 3.4
(1)	.13	.13	.20	.18	.04	.13	.15	.51	2.63	8.69	10.79	5.97	3.69	2.79	.40	.07	.00	36.49	
(2)	.01	.01	.01	.01	.00	.01	.01	.04	.20	.65	.81	.45	.28	.21	.03	.00	.00	2.74	
1.6- 2.0	1	8	2	9	0	8	4	22	82	263	378	138	108	126	26	5	0	1180	3.5 – 4.5
(1)	.02	.18	.04	.20	.00	.18	.09	.49	1.81	5.81	8.36	3.05	2.39	2.79	.57	.11	.00	26.08	
(2)	.00	.01	.00	.01	.00	.01	.01	.04	.14	.44	.63	.23	.18	.21	.04	.01	.00	1.96	
2.1- 3.0	1	4	3	0	0	2	2	7	22	64	160	72	55	51	21	2	0	466	4.6 – 6.7
(1)	.02	.09	.07	.00	.00	.04	.04	.15	.49	1.41	3.54	1.59	1.22	1.13	.46	.04	.00	10.30	
(2)	.00	.01	.00	.00	.00	.00	.00	.01	.04	.11	.27	.12	.09	.08	.03	.00	.00	.77	
3.1- 4.0	0	1	0	0	0	0	0	1	0	3	3	1	3	0	2	0	0	14	6.8 – 8.9
(1)	.00	.02	.00	.00	.00	.00	.00	.02	.00	.07	.07	.02	.07	.00	.04	.00	.00	.31	
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.02	
4.1- 5.0	0	1	2	5	1	0	0	0	0	0	1	0	0	1	5	0	0	16	9.0 – 11.2
(1)	.00	.02	.04	.11	.02	.00	.00	.00	.00	.00	.02	.00	.00	.02	.11	.00	.00	.35	
(2)	.00	.00	.00	.01	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	.00	.00	.03	
5.1- 6.0	0	0	3	2	0	0	0	0	0	0	0	0	0	1	1	0	0	7	11.3 – 13.4
(1)	.00	.00	.07	.04	.00	.00	.00	.00	.00	.00	.00	.00	.00	.02	.02	.00	.00	.15	
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	
6.1- 8.0	0	0	8	1	0	0	0	0	0	0	0	0	0	0	0	0	0	9	13.5 – 17.9
(1)	.00	.00	.18	.02	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.20	
(2)	.00	.00	.01	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	
8.1-10.0	0	0	3	2	0	0	0	0	0	0	0	0	0	0	0	0	0	5	18.0 – 22.4
(1)	.00	.00	.07	.04	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.11	
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	
10.1-89.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22.5 – 200.2
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
ALL SPEEDS	25	25	42	44	15	36	27	92	312	870	1259	710	516	421	103	27	0	4524	
(1)	.55	.55	.93	.97	.33	.80	.60	2.03	6.90	19.23	27.83	15.69	11.41	9.31	2.28	.60	.00	100.00	
(2)	.04	.04	.07	.07	.02	.06	.04	.15	.52	1.45	2.09	1.18	.86	.70	.17	.04	.00	7.52	

(1)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PAGE
(2)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PERIOD

Table 2.3-98 — {CCNPP 33' (10-m) 2000-2006 Annual Joint Frequency Distribution Table}

(Page 8 of 8)

CC JAN00-DEC06 MET DATA JOINT FREQUENCY DISTRIBUTION (60-METER TOWER)
33.0 FT WIND DATA STABILITY CLASS ALL CLASS FREQUENCY (PERCENT) = 100.00

WIND DIRECTION FROM

SPEED mps	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VRBL	TOTAL	SPEED MPH
LT .2	3	8	3	4	7	4	9	11	24	19	36	33	11	7	10	5	0	194	LT .4
(1)	.00	.01	.00	.01	.01	.01	.01	.02	.04	.03	.06	.05	.02	.01	.02	.01	.00	.32	
(2)	.00	.01	.00	.01	.01	.01	.01	.02	.04	.03	.06	.05	.02	.01	.02	.01	.00	.32	
.2- .4	6	5	15	9	14	23	20	29	46	63	47	38	44	29	16	11	0	415	.4 - .9
(1)	.01	.01	.02	.01	.02	.04	.03	.05	.08	.10	.08	.06	.07	.05	.03	.02	.00	.69	
(2)	.01	.01	.02	.01	.02	.04	.03	.05	.08	.10	.08	.06	.07	.05	.03	.02	.00	.69	
.5- 1.0	135	111	128	105	138	164	143	204	327	453	570	443	354	273	136	145	0	3829	1.0 – 2.2
(1)	.22	.18	.21	.17	.23	.27	.24	.34	.54	.75	.95	.74	.59	.45	.23	.24	.00	6.36	
(2)	.22	.18	.21	.17	.23	.27	.24	.34	.54	.75	.95	.74	.59	.45	.23	.24	.00	6.36	
1.1- 1.5	241	253	211	211	261	220	231	338	651	1175	1244	702	491	439	295	172	0	7135	2.3 – 3.4
(1)	.40	.42	.35	.35	.43	.37	.38	.56	1.08	1.95	2.07	1.17	.82	.73	.49	.29	.00	11.86	
(2)	.40	.42	.35	.35	.43	.37	.38	.56	1.08	1.95	2.07	1.17	.82	.73	.49	.29	.00	11.86	
1.6- 2.0	371	501	320	398	396	297	329	460	743	1112	1338	711	542	576	471	305	0	8870	3.5 – 4.5
(1)	.62	.83	.53	.66	.66	.49	.55	.76	1.24	1.85	2.22	1.18	.90	.96	.78	.51	.00	14.74	
(2)	.62	.83	.53	.66	.66	.49	.55	.76	1.24	1.85	2.22	1.18	.90	.96	.78	.51	.00	14.74	
2.1- 3.0	1129	1304	899	903	738	495	599	969	1139	1476	2338	1214	772	818	1179	740	0	16712	4.6 – 6.7
(1)	1.88	2.17	1.49	1.50	1.23	.82	1.00	1.61	1.89	2.45	3.89	2.02	1.28	1.36	1.96	1.23	.00	27.78	
(2)	1.88	2.17	1.49	1.50	1.23	.82	1.00	1.61	1.89	2.45	3.89	2.02	1.28	1.36	1.96	1.23	.00	27.78	
3.1- 4.0	1199	905	805	541	254	191	372	911	540	770	1643	699	421	495	937	782	0	11465	6.8 – 8.9
(1)	1.99	1.50	1.34	.90	.42	.32	.62	1.51	.90	1.28	2.73	1.16	.70	.82	1.56	1.30	.00	19.06	
(2)	1.99	1.50	1.34	.90	.42	.32	.62	1.51	.90	1.28	2.73	1.16	.70	.82	1.56	1.30	.00	19.06	
4.1- 5.0	758	471	556	281	68	39	142	484	212	373	752	268	230	432	687	506	0	6259	9.0 – 11.2
(1)	1.26	.78	.92	.47	.11	.06	.24	.80	.35	.62	1.25	.45	.38	.72	1.14	.84	.00	10.40	
(2)	1.26	.78	.92	.47	.11	.06	.24	.80	.35	.62	1.25	.45	.38	.72	1.14	.84	.00	10.40	
5.1- 6.0	432	247	342	144	5	7	43	237	56	130	289	70	112	337	509	211	0	3171	11.3 – 13.4
(1)	.72	.41	.57	.24	.01	.01	.07	.39	.09	.22	.48	.12	.19	.56	.85	.35	.00	5.27	
(2)	.72	.41	.57	.24	.01	.01	.07	.39	.09	.22	.48	.12	.19	.56	.85	.35	.00	5.27	
6.1- 8.0	262	119	249	68	3	3	19	132	28	44	60	33	48	300	361	88	0	1817	13.5 – 17.9
(1)	.44	.20	.41	.11	.00	.00	.03	.22	.05	.07	.10	.05	.08	.50	.60	.15	.00	3.02	
(2)	.44	.20	.41	.11	.00	.00	.03	.22	.05	.07	.10	.05	.08	.50	.60	.15	.00	3.02	
8.1-10.0	44	12	50	12	1	0	4	15	1	4	1	3	6	45	41	8	0	247	18.0 – 22.4
(1)	.07	.02	.08	.02	.00	.00	.01	.02	.00	.01	.00	.00	.01	.07	.07	.01	.00	.41	
(2)	.07	.02	.08	.02	.00	.00	.01	.02	.00	.01	.00	.00	.01	.07	.07	.01	.00	.41	
10.1-89.5	5	2	22	5	1	2	3	1	0	0	0	0	1	2	1	0	0	45	22.5 – 200.2
(1)	.01	.00	.04	.01	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.07	
(2)	.01	.00	.04	.01	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.07	
ALL SPEEDS	4585	3938	3600	2681	1886	1445	1914	3791	3767	5619	8318	4214	3032	3753	4643	2973	0	60159	
(1)	7.62	6.55	5.98	4.46	3.14	2.40	3.18	6.30	6.26	9.34	13.83	7.00	5.04	6.24	7.72	4.94	.00	100.00	
(2)	7.62	6.55	5.98	4.46	3.14	2.40	3.18	6.30	6.26	9.34	13.83	7.00	5.04	6.24	7.72	4.94	.00	100.00	

(1)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PAGE
(2)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PERIOD

Table 2.3-99 — {CCNPP 197' (60-m) 2000-2006 Annual Joint Frequency Distribution Table}

(Page 1 of 8)

CC JAN00-DEC06 MET DATA JOINT FREQUENCY DISTRIBUTION (60-METER TOWER)

197.0 FT WIND DATA STABILITY CLASS A CLASS FREQUENCY (PERCENT) = 10.94

WIND DIRECTION FROM

SPEED mps	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VRBL	TOTAL	SPEED MPH
LT .2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	LT .4
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
.2- .4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	.4 - .9
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
.5- 1.0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2	1.0 – 2.2
(1)	.00	.00	.02	.00	.02	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.03	
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
1.1- 1.5	2	3	2	3	4	2	1	1	0	1	0	1	1	1	0	0	0	22	2.3 – 3.4
(1)	.03	.05	.03	.05	.06	.03	.02	.02	.00	.02	.00	.02	.02	.02	.00	.00	.00	.34	
(2)	.00	.01	.00	.01	.01	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.04	
1.6- 2.0	12	13	9	12	20	1	1	1	2	4	12	11	6	0	1	6	0	111	3.5 – 4.5
(1)	.18	.20	.14	.18	.31	.02	.02	.02	.03	.06	.18	.17	.09	.00	.02	.09	.00	1.70	
(2)	.02	.02	.02	.02	.03	.00	.00	.00	.00	.01	.02	.02	.01	.00	.00	.01	.00	.19	
2.1- 3.0	75	91	58	55	76	48	26	22	29	48	77	33	17	10	10	15	0	690	4.6 – 6.7
(1)	1.15	1.39	.89	.84	1.16	.73	.40	.34	.44	.73	1.18	.51	.26	.15	.15	.23	.00	10.56	
(2)	.13	.15	.10	.09	.13	.08	.04	.04	.05	.08	.13	.06	.03	.02	.02	.03	.00	1.16	
3.1- 4.0	166	181	38	18	30	54	63	91	54	120	157	93	42	27	18	22	0	1174	6.8 – 8.9
(1)	2.54	2.77	.58	.28	.46	.83	.96	1.39	.83	1.84	2.40	1.42	.64	.41	.28	.34	.00	17.97	
(2)	.28	.30	.06	.03	.05	.09	.11	.15	.09	.20	.26	.16	.07	.05	.03	.04	.00	1.97	
4.1- 5.0	246	132	20	6	14	32	79	112	52	150	222	112	64	50	59	42	0	1392	9.0 – 11.2
(1)	3.77	2.02	.31	.09	.21	.49	1.21	1.71	.80	2.30	3.40	1.71	.98	.77	.90	.64	.00	21.31	
(2)	.41	.22	.03	.01	.02	.05	.13	.19	.09	.25	.37	.19	.11	.08	.10	.07	.00	2.33	
5.1- 6.0	154	93	14	1	7	6	55	91	39	108	203	89	62	75	72	56	0	1125	11.3 – 13.4
(1)	2.36	1.42	.21	.02	.11	.09	.84	1.39	.60	1.65	3.11	1.36	.95	1.15	1.10	.86	.00	17.22	
(2)	.26	.16	.02	.00	.01	.01	.09	.15	.07	.18	.34	.15	.10	.13	.12	.09	.00	1.88	
6.1- 8.0	141	78	22	5	6	6	39	89	28	152	244	87	78	180	168	64	0	1387	13.5 – 17.9
(1)	2.16	1.19	.34	.08	.09	.09	.60	1.36	.43	2.33	3.74	1.33	1.19	2.76	2.57	.98	.00	21.23	
(2)	.24	.13	.04	.01	.01	.01	.07	.15	.05	.25	.41	.15	.13	.30	.28	.11	.00	2.32	
8.1-10.0	35	33	11	2	0	0	7	23	3	47	62	19	16	107	110	13	0	488	18.0 – 22.4
(1)	.54	.51	.17	.03	.00	.00	.11	.35	.05	.72	.95	.29	.24	1.64	1.68	.20	.00	7.47	
(2)	.06	.06	.02	.00	.00	.00	.01	.04	.01	.08	.10	.03	.03	.18	.18	.02	.00	.82	
10.1-89.5	4	6	9	1	0	0	0	6	1	12	9	5	10	35	38	5	0	141	22.5 – 200.2
(1)	.06	.09	.14	.02	.00	.00	.00	.09	.02	.18	.14	.08	.15	.54	.58	.08	.00	2.16	
(2)	.01	.01	.02	.00	.00	.00	.00	.01	.00	.02	.02	.01	.02	.06	.06	.01	.00	.24	
ALL SPEEDS	835	630	184	103	158	149	271	436	208	642	986	450	296	485	476	223	0	6532	
(1)	12.78	9.64	2.82	1.58	2.42	2.28	4.15	6.67	3.18	9.83	15.09	6.89	4.53	7.42	7.29	3.41	.00	100.00	
(2)	1.40	1.06	.31	.17	.26	.25	.45	.73	.35	1.08	1.65	.75	.50	.81	.80	.37	.00	10.94	

(1)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PAGE

(2)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PERIOD

Table 2.3-99 — {CCNPP 197' (60-m) 2000-2006 Annual Joint Frequency Distribution Table}

(Page 2 of 8)

CC JAN00-DEC06 MET DATA JOINT FREQUENCY DISTRIBUTION (60-METER TOWER)

197.0 FT WIND DATA STABILITY CLASS B CLASS FREQUENCY (PERCENT) = 4.50

WIND DIRECTION FROM

SPEED mps	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VRBL	TOTAL	SPEED MPH
LT .2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	LT .4
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
.2- .4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	.4 - .9
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
.5- 1.0	0	1	1	0	1	0	0	1	0	0	0	0	1	0	2	0	0	7	1.0 – 2.2
(1)	.00	.04	.04	.00	.04	.00	.00	.04	.00	.00	.00	.00	.04	.00	.07	.00	.00	.26	
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	
1.1- 1.5	2	4	2	5	3	3	3	1	0	0	4	2	1	0	0	0	0	30	2.3 – 3.4
(1)	.07	.15	.07	.19	.11	.11	.11	.04	.00	.00	.15	.07	.04	.00	.00	.00	.00	1.12	
(2)	.00	.01	.00	.01	.01	.01	.01	.00	.00	.00	.01	.00	.00	.00	.00	.00	.00	.05	
1.6- 2.0	6	10	14	20	10	11	3	1	4	3	7	5	1	1	3	3	0	102	3.5 – 4.5
(1)	.22	.37	.52	.74	.37	.41	.11	.04	.15	.11	.26	.19	.04	.04	.11	.11	.00	3.79	
(2)	.01	.02	.02	.03	.02	.02	.01	.00	.01	.01	.01	.01	.00	.00	.01	.01	.00	.17	
2.1- 3.0	66	81	48	38	68	30	22	17	12	26	25	33	14	9	4	13	0	506	4.6 – 6.7
(1)	2.45	3.01	1.79	1.41	2.53	1.12	.82	.63	.45	.97	.93	1.23	.52	.33	.15	.48	.00	18.82	
(2)	.11	.14	.08	.06	.11	.05	.04	.03	.02	.04	.04	.06	.02	.02	.01	.02	.00	.85	
3.1- 4.0	94	87	16	12	13	22	37	42	20	26	46	38	29	24	13	17	0	536	6.8 – 8.9
(1)	3.50	3.24	.60	.45	.48	.82	1.38	1.56	.74	.97	1.71	1.41	1.08	.89	.48	.63	.00	19.93	
(2)	.16	.15	.03	.02	.02	.04	.06	.07	.03	.04	.08	.06	.05	.04	.02	.03	.00	.90	
4.1- 5.0	78	46	8	4	5	11	30	56	17	33	51	38	22	20	20	20	0	459	9.0 – 11.2
(1)	2.90	1.71	.30	.15	.19	.41	1.12	2.08	.63	1.23	1.90	1.41	.82	.74	.74	.74	.00	17.07	
(2)	.13	.08	.01	.01	.01	.02	.05	.09	.03	.06	.09	.06	.04	.03	.03	.03	.00	.77	
5.1- 6.0	49	26	9	1	3	1	25	42	8	37	59	22	20	22	29	21	0	374	11.3 – 13.4
(1)	1.82	.97	.33	.04	.11	.04	.93	1.56	.30	1.38	2.19	.82	.74	.82	1.08	.78	.00	13.91	
(2)	.08	.04	.02	.00	.01	.00	.04	.07	.01	.06	.10	.04	.03	.04	.05	.04	.00	.63	
6.1- 8.0	43	18	16	3	2	3	7	28	9	38	53	20	27	42	57	33	0	399	13.5 – 17.9
(1)	1.60	.67	.60	.11	.07	.11	.26	1.04	.33	1.41	1.97	.74	1.00	1.56	2.12	1.23	.00	14.84	
(2)	.07	.03	.03	.01	.00	.01	.01	.05	.02	.06	.09	.03	.05	.07	.10	.06	.00	.67	
8.1-10.0	25	12	10	3	0	0	2	19	3	17	13	5	9	39	41	15	0	213	18.0 – 22.4
(1)	.93	.45	.37	.11	.00	.00	.07	.71	.11	.63	.48	.19	.33	1.45	1.52	.56	.00	7.92	
(2)	.04	.02	.02	.01	.00	.00	.00	.03	.01	.03	.02	.01	.02	.07	.07	.03	.00	.36	
10.1-89.5	5	7	2	1	0	0	0	3	3	0	3	3	1	13	17	5	0	63	22.5 – 200.2
(1)	.19	.26	.07	.04	.00	.00	.00	.11	.11	.00	.11	.11	.04	.48	.63	.19	.00	2.34	
(2)	.01	.01	.00	.00	.00	.00	.00	.01	.01	.00	.01	.01	.00	.02	.03	.01	.00	.11	
ALL SPEEDS	368	292	126	87	105	81	129	210	76	180	261	166	125	170	186	127	0	2689	
(1)	13.69	10.86	4.69	3.24	3.90	3.01	4.80	7.81	2.83	6.69	9.71	6.17	4.65	6.32	6.92	4.72	.00	100.00	
(2)	.62	.49	.21	.15	.18	.14	.22	.35	.13	.30	.44	.28	.21	.28	.31	.21	.00	4.50	

(1)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PAGE

(2)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PERIOD

Table 2.3-99 — {CCNPP 197' (60-m) 2000-2006 Annual Joint Frequency Distribution Table}

(Page 3 of 8)

CC JAN00-DEC06 MET DATA JOINT FREQUENCY DISTRIBUTION (60-METER TOWER)

197.0 FT WIND DATA STABILITY CLASS C CLASS FREQUENCY (PERCENT) = 5.10

WIND DIRECTION FROM

SPEED mps	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VRBL	TOTAL	SPEED MPH
LT .2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	LT .4
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
.2- .4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	.4 - .9
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
.5- 1.0	1	1	1	0	0	2	1	1	1	1	0	4	0	1	0	0	0	14	1.0 – 2.2
(1)	.03	.03	.03	.00	.00	.07	.03	.03	.03	.03	.00	.13	.00	.03	.00	.00	.00	.46	
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	.00	.00	.00	.00	.00	.02	
1.1- 1.5	3	7	9	8	8	1	3	1	2	1	4	4	3	1	3	3	0	61	2.3 – 3.4
(1)	.10	.23	.30	.26	.26	.03	.10	.03	.07	.03	.13	.13	.10	.03	.10	.10	.00	2.00	
(2)	.01	.01	.02	.01	.01	.00	.01	.00	.00	.00	.01	.01	.01	.00	.01	.01	.00	.10	
1.6- 2.0	15	33	22	26	27	13	6	6	2	4	16	10	8	5	4	4	0	201	3.5 – 4.5
(1)	.49	1.08	.72	.85	.89	.43	.20	.20	.07	.13	.53	.33	.26	.16	.13	.13	.00	6.61	
(2)	.03	.06	.04	.04	.05	.02	.01	.01	.00	.01	.03	.02	.01	.01	.01	.01	.00	.34	
2.1- 3.0	67	103	54	65	56	40	35	27	21	17	43	29	20	19	6	12	0	614	4.6 – 6.7
(1)	2.20	3.38	1.77	2.14	1.84	1.31	1.15	.89	.69	.56	1.41	.95	.66	.62	.20	.39	.00	20.18	
(2)	.11	.17	.09	.11	.09	.07	.06	.05	.04	.03	.07	.05	.03	.03	.01	.02	.00	1.03	
3.1- 4.0	118	95	32	14	18	24	33	39	26	26	58	47	31	21	30	32	0	644	6.8 – 8.9
(1)	3.88	3.12	1.05	.46	.59	.79	1.08	1.28	.85	.85	1.91	1.54	1.02	.69	.99	1.05	.00	21.16	
(2)	.20	.16	.05	.02	.03	.04	.06	.07	.04	.04	.10	.08	.05	.04	.05	.05	.00	1.08	
4.1- 5.0	72	49	11	3	11	9	20	68	18	38	54	37	24	22	37	35	0	508	9.0 – 11.2
(1)	2.37	1.61	.36	.10	.36	.30	.66	2.23	.59	1.25	1.77	1.22	.79	.72	1.22	1.15	.00	16.69	
(2)	.12	.08	.02	.01	.02	.02	.03	.11	.03	.06	.09	.06	.04	.04	.06	.06	.00	.85	
5.1- 6.0	48	27	8	6	1	2	6	41	10	27	48	31	17	23	26	27	0	348	11.3 – 13.4
(1)	1.58	.89	.26	.20	.03	.07	.20	1.35	.33	.89	1.58	1.02	.56	.76	.85	.89	.00	11.44	
(2)	.08	.05	.01	.01	.00	.00	.01	.07	.02	.05	.08	.05	.03	.04	.04	.05	.00	.58	
6.1- 8.0	36	31	19	5	1	2	9	39	12	38	45	25	21	32	63	30	0	408	13.5 – 17.9
(1)	1.18	1.02	.62	.16	.03	.07	.30	1.28	.39	1.25	1.48	.82	.69	1.05	2.07	.99	.00	13.41	
(2)	.06	.05	.03	.01	.00	.00	.02	.07	.02	.06	.08	.04	.04	.05	.11	.05	.00	.68	
8.1-10.0	13	26	9	3	1	0	2	10	2	8	18	3	5	33	34	7	0	174	18.0 – 22.4
(1)	.43	.85	.30	.10	.03	.00	.07	.33	.07	.26	.59	.10	.16	1.08	1.12	.23	.00	5.72	
(2)	.02	.04	.02	.01	.00	.00	.00	.02	.00	.01	.03	.01	.01	.06	.06	.01	.00	.29	
10.1-89.5	10	8	6	2	0	0	0	0	0	2	3	0	2	12	25	1	0	71	22.5 – 200.2
(1)	.33	.26	.20	.07	.00	.00	.00	.00	.00	.07	.10	.00	.07	.39	.82	.03	.00	2.33	
(2)	.02	.01	.01	.00	.00	.00	.00	.00	.00	.00	.01	.00	.00	.02	.04	.00	.00	.12	
ALL SPEEDS	383	380	171	132	123	93	115	232	94	162	289	190	131	169	228	151	0	3043	
(1)	12.59	12.49	5.62	4.34	4.04	3.06	3.78	7.62	3.09	5.32	9.50	6.24	4.30	5.55	7.49	4.96	.00	100.00	
(2)	.64	.64	.29	.22	.21	.16	.19	.39	.16	.27	.48	.32	.22	.28	.38	.25	.00	5.10	

(1)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PAGE

(2)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PERIOD

Table 2.3-99 — {CCNPP 197' (60-m) 2000-2006 Annual Joint Frequency Distribution Table}

(Page 4 of 8)

CC JAN00-DEC06 MET DATA JOINT FREQUENCY DISTRIBUTION (60-METER TOWER)

197.0 FT WIND DATA STABILITY CLASS D CLASS FREQUENCY (PERCENT) = 33.93

								WIND DIRECTION FROM											
SPEED mps	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VRBL	TOTAL	SPEED MPH
LT .2	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2	LT .4
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	
.2- .4	0	2	0	0	1	0	0	1	0	0	0	0	1	2	1	1	0	9	.4 - .9
(1)	.00	.01	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	.00	.00	.00	.04	
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.02	
.5- 1.0	18	18	26	21	28	13	11	12	11	12	12	9	8	11	8	17	0	235	1.0 – 2.2
(1)	.09	.09	.13	.10	.14	.06	.05	.06	.05	.06	.06	.04	.04	.05	.04	.08	.00	1.16	
(2)	.03	.03	.04	.04	.05	.02	.02	.02	.02	.02	.02	.02	.01	.02	.01	.03	.00	.39	
1.1- 1.5	45	52	47	55	57	41	24	15	16	17	22	22	24	19	20	21	0	497	2.3 – 3.4
(1)	.22	.26	.23	.27	.28	.20	.12	.07	.08	.08	.11	.11	.12	.09	.10	.10	.00	2.45	
(2)	.08	.09	.08	.09	.10	.07	.04	.03	.03	.03	.04	.04	.04	.03	.03	.04	.00	.83	
1.6- 2.0	72	106	77	99	119	59	36	22	32	25	57	36	35	27	29	52	0	883	3.5 – 4.5
(1)	.36	.52	.38	.49	.59	.29	.18	.11	.16	.12	.28	.18	.17	.13	.14	.26	.00	4.36	
(2)	.12	.18	.13	.17	.20	.10	.06	.04	.05	.04	.10	.06	.06	.05	.05	.09	.00	1.48	
2.1- 3.0	306	347	188	256	258	152	164	165	107	112	109	110	83	66	91	106	0	2620	4.6 – 6.7
(1)	1.51	1.71	.93	1.26	1.27	.75	.81	.81	.53	.55	.54	.54	.41	.33	.45	.52	.00	12.93	
(2)	.51	.58	.31	.43	.43	.25	.27	.28	.18	.19	.18	.18	.14	.11	.15	.18	.00	4.39	
3.1- 4.0	279	282	174	287	230	194	198	240	167	144	174	148	109	101	143	206	0	3076	6.8 – 8.9
(1)	1.38	1.39	.86	1.42	1.14	.96	.98	1.18	.82	.71	.86	.73	.54	.50	.71	1.02	.00	15.19	
(2)	.47	.47	.29	.48	.39	.32	.33	.40	.28	.24	.29	.25	.18	.17	.24	.35	.00	5.15	
4.1- 5.0	277	225	243	283	209	122	170	319	153	158	160	134	81	106	188	261	0	3089	9.0 – 11.2
(1)	1.37	1.11	1.20	1.40	1.03	.60	.84	1.57	.76	.78	.79	.66	.40	.52	.93	1.29	.00	15.25	
(2)	.46	.38	.41	.47	.35	.20	.28	.53	.26	.26	.27	.22	.14	.18	.31	.44	.00	5.17	
5.1- 6.0	258	227	254	224	95	72	117	295	99	131	175	123	68	124	279	324	0	2865	11.3 – 13.4
(1)	1.27	1.12	1.25	1.11	.47	.36	.58	1.46	.49	.65	.86	.61	.34	.61	1.38	1.60	.00	14.14	
(2)	.43	.38	.43	.38	.16	.12	.20	.49	.17	.22	.29	.21	.11	.21	.47	.54	.00	4.80	
6.1- 8.0	443	480	411	211	63	46	92	333	126	180	303	126	81	218	502	479	0	4094	13.5 – 17.9
(1)	2.19	2.37	2.03	1.04	.31	.23	.45	1.64	.62	.89	1.50	.62	.40	1.08	2.48	2.36	.00	20.21	
(2)	.74	.80	.69	.35	.11	.08	.15	.56	.21	.30	.51	.21	.14	.37	.84	.80	.00	6.86	
8.1-10.0	301	328	240	47	4	4	35	117	38	89	127	18	27	162	259	181	0	1977	18.0 – 22.4
(1)	1.49	1.62	1.18	.23	.02	.02	.17	.58	.19	.44	.63	.09	.13	.80	1.28	.89	.00	9.76	
(2)	.50	.55	.40	.08	.01	.01	.06	.20	.06	.15	.21	.03	.05	.27	.43	.30	.00	3.31	
10.1-89.5	173	238	131	21	2	2	12	35	11	23	15	9	12	86	91	48	0	909	22.5 – 200.2
(1)	.85	1.17	.65	.10	.01	.01	.06	.17	.05	.11	.07	.04	.06	.42	.45	.24	.00	4.49	
(2)	.29	.40	.22	.04	.00	.00	.02	.06	.02	.04	.03	.02	.02	.14	.15	.08	.00	1.52	
ALL SPEEDS	2172	2306	1791	1504	1066	706	859	1554	760	891	1154	735	529	922	1611	1696	0	20256	
(1)	10.72	11.38	8.84	7.42	5.26	3.49	4.24	7.67	3.75	4.40	5.70	3.63	2.61	4.55	7.95	8.37	.00	100.00	
(2)	3.64	3.86	3.00	2.52	1.79	1.18	1.44	2.60	1.27	1.49	1.93	1.23	.89	1.54	2.70	2.84	.00	33.93	

(1)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PAGE

(2)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PERIOD

Table 2.3-99 — {CCNPP 197' (60-m) 2000-2006 Annual Joint Frequency Distribution Table}

(Page 5 of 8)

CC JAN00-DEC06 MET DATA JOINT FREQUENCY DISTRIBUTION (60-METER TOWER)
197.0 FT WIND DATA STABILITY CLASS E CLASS FREQUENCY (PERCENT) = 27.60

	WIND DIRECTION FROM																		
SPEED mps	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VRBL	TOTAL	SPEED MPH
LT .2	0	0	1	0	1	0	0	0	0	1	0	0	1	0	0	0	0	4	LT .4
(1)	.00	.00	.01	.00	.01	.00	.00	.00	.00	.01	.00	.00	.01	.00	.00	.00	.00	.02	
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	
.2- .4	2	0	2	1	1	0	1	1	2	0	0	0	1	0	1	0	0	12	.4 - .9
(1)	.01	.00	.01	.01	.01	.00	.01	.01	.01	.00	.00	.00	.01	.00	.01	.00	.00	.07	
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.02	
.5- 1.0	12	8	21	13	25	18	13	21	7	14	7	8	8	8	12	11	0	206	1.0 – 2.2
(1)	.07	.05	.13	.08	.15	.11	.08	.13	.04	.08	.04	.05	.05	.05	.07	.07	.00	1.25	
(2)	.02	.01	.04	.02	.04	.03	.02	.04	.01	.02	.01	.01	.01	.01	.02	.02	.00	.35	
1.1- 1.5	19	21	19	21	18	14	22	17	15	14	13	8	9	13	13	13	0	249	2.3 – 3.4
(1)	.12	.13	.12	.13	.11	.08	.13	.10	.09	.08	.08	.05	.05	.08	.08	.08	.00	1.51	
(2)	.03	.04	.03	.04	.03	.02	.04	.03	.03	.02	.02	.01	.02	.02	.02	.02	.00	.42	
1.6- 2.0	25	41	36	35	51	26	20	29	29	21	21	19	12	20	14	15	0	414	3.5 – 4.5
(1)	.15	.25	.22	.21	.31	.16	.12	.18	.18	.13	.13	.12	.07	.12	.08	.09	.00	2.51	
(2)	.04	.07	.06	.06	.09	.04	.03	.05	.05	.04	.04	.03	.02	.03	.02	.03	.00	.69	
2.1- 3.0	92	89	91	98	116	80	79	86	84	62	95	60	67	78	88	94	0	1359	4.6 – 6.7
(1)	.56	.54	.55	.59	.70	.49	.48	.52	.51	.38	.58	.36	.41	.47	.53	.57	.00	8.25	
(2)	.15	.15	.15	.16	.19	.13	.13	.14	.14	.10	.16	.10	.11	.13	.15	.16	.00	2.28	
3.1- 4.0	175	113	101	82	126	102	97	175	162	139	158	133	121	172	176	206	0	2238	6.8 – 8.9
(1)	1.06	.69	.61	.50	.76	.62	.59	1.06	.98	.84	.96	.81	.73	1.04	1.07	1.25	.00	13.59	
(2)	.29	.19	.17	.14	.21	.17	.16	.29	.27	.23	.26	.22	.20	.29	.29	.35	.00	3.75	
4.1- 5.0	192	125	96	50	44	103	142	305	325	231	219	193	161	298	401	377	0	3262	9.0 – 11.2
(1)	1.17	.76	.58	.30	.27	.63	.86	1.85	1.97	1.40	1.33	1.17	.98	1.81	2.43	2.29	.00	19.80	
(2)	.32	.21	.16	.08	.07	.17	.24	.51	.54	.39	.37	.32	.27	.50	.67	.63	.00	5.46	
5.1- 6.0	164	99	49	18	26	26	68	334	423	371	329	224	151	302	447	391	0	3422	11.3 – 13.4
(1)	1.00	.60	.30	.11	.16	.16	.41	2.03	2.57	2.25	2.00	1.36	.92	1.83	2.71	2.37	.00	20.77	
(2)	.27	.17	.08	.03	.04	.04	.11	.56	.71	.62	.55	.38	.25	.51	.75	.66	.00	5.73	
6.1- 8.0	128	131	32	7	7	19	41	251	453	930	865	191	118	272	351	302	0	4098	13.5 – 17.9
(1)	.78	.80	.19	.04	.04	.12	.25	1.52	2.75	5.65	5.25	1.16	.72	1.65	2.13	1.83	.00	24.88	
(2)	.21	.22	.05	.01	.01	.03	.07	.42	.76	1.56	1.45	.32	.20	.46	.59	.51	.00	6.87	
8.1-10.0	56	27	8	2	3	4	7	65	84	274	273	28	20	70	47	37	0	1005	18.0 – 22.4
(1)	.34	.16	.05	.01	.02	.02	.04	.39	.51	1.66	1.66	.17	.12	.42	.29	.22	.00	6.10	
(2)	.09	.05	.01	.00	.01	.01	.01	.11	.14	.46	.46	.05	.03	.12	.08	.06	.00	1.68	
10.1-89.5	18	17	12	2	1	4	8	27	10	44	27	3	4	15	6	7	0	205	22.5 – 200.2
(1)	.11	.10	.07	.01	.01	.02	.05	.16	.06	.27	.16	.02	.02	.09	.04	.04	.00	1.24	
(2)	.03	.03	.02	.00	.00	.01	.01	.05	.02	.07	.05	.01	.01	.03	.01	.01	.00	.34	
ALL SPEEDS	883	671	468	329	419	396	498	1311	1594	2101	2007	867	673	1248	1556	1453	0	16474	
(1)	5.36	4.07	2.84	2.00	2.54	2.40	3.02	7.96	9.68	12.75	12.18	5.26	4.09	7.58	9.45	8.82	.00	100.00	
(2)	1.48	1.12	.78	.55	.70	.66	.83	2.20	2.67	3.52	3.36	1.45	1.13	2.09	2.61	2.43	.00	27.60	

(1)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PAGE
(2)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PERIOD

Table 2.3-99 — {CCNPP 197' (60-m) 2000-2006 Annual Joint Frequency Distribution Table}

(Page 6 of 8)

CC JAN00-DEC06 MET DATA JOINT FREQUENCY DISTRIBUTION (60-METER TOWER)

197.0 FT WIND DATA STABILITY CLASS F CLASS FREQUENCY (PERCENT) = 10.44

WIND DIRECTION FROM

SPEED mps	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VRBL	TOTAL	SPEED MPH
LT .2	0	0	0	1	0	1	0	0	0	0	0	1	0	0	0	0	0	3	LT .4
(1)	.00	.00	.00	.02	.00	.02	.00	.00	.00	.00	.00	.02	.00	.00	.00	.00	.00	.05	
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	
.2- .4	2	1	0	0	0	1	1	2	1	0	1	1	0	0	0	0	0	10	.4 - .9
(1)	.03	.02	.00	.00	.00	.02	.02	.03	.02	.00	.02	.02	.00	.00	.00	.00	.00	.16	
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.02	
.5- 1.0	6	5	7	10	12	13	7	8	6	12	10	5	6	5	7	6	0	125	1.0 – 2.2
(1)	.10	.08	.11	.16	.19	.21	.11	.13	.10	.19	.16	.08	.10	.08	.11	.10	.00	2.01	
(2)	.01	.01	.01	.02	.02	.02	.01	.01	.01	.02	.02	.01	.01	.01	.01	.01	.00	.21	
1.1- 1.5	8	10	9	8	18	7	9	12	11	7	7	4	9	9	9	8	0	145	2.3 – 3.4
(1)	.13	.16	.14	.13	.29	.11	.14	.19	.18	.11	.11	.06	.14	.14	.14	.13	.00	2.33	
(2)	.01	.02	.02	.01	.03	.01	.02	.02	.02	.01	.01	.01	.02	.02	.02	.01	.00	.24	
1.6- 2.0	11	7	13	20	17	16	17	11	13	15	14	11	11	10	12	11	0	209	3.5 – 4.5
(1)	.18	.11	.21	.32	.27	.26	.27	.18	.21	.24	.22	.18	.18	.16	.19	.18	.00	3.35	
(2)	.02	.01	.02	.03	.03	.03	.03	.02	.02	.03	.02	.02	.02	.02	.02	.02	.00	.35	
2.1- 3.0	48	41	29	26	36	29	30	36	45	45	44	39	34	50	29	40	0	601	4.6 – 6.7
(1)	.77	.66	.47	.42	.58	.47	.48	.58	.72	.72	.71	.63	.55	.80	.47	.64	.00	9.64	
(2)	.08	.07	.05	.04	.06	.05	.05	.06	.08	.08	.07	.07	.06	.08	.05	.07	.00	1.01	
3.1- 4.0	43	24	28	19	20	31	57	64	105	92	89	81	60	62	55	61	0	891	6.8 – 8.9
(1)	.69	.38	.45	.30	.32	.50	.91	1.03	1.68	1.48	1.43	1.30	.96	.99	.88	.98	.00	14.29	
(2)	.07	.04	.05	.03	.03	.05	.10	.11	.18	.15	.15	.14	.10	.10	.09	.10	.00	1.49	
4.1- 5.0	42	22	11	6	4	13	46	100	155	165	142	118	102	104	97	97	0	1224	9.0 – 11.2
(1)	.67	.35	.18	.10	.06	.21	.74	1.60	2.49	2.65	2.28	1.89	1.64	1.67	1.56	1.56	.00	19.63	
(2)	.07	.04	.02	.01	.01	.02	.08	.17	.26	.28	.24	.20	.17	.17	.16	.16	.00	2.05	
5.1- 6.0	18	13	8	4	0	5	32	108	306	277	191	129	112	110	130	76	0	1519	11.3 – 13.4
(1)	.29	.21	.13	.06	.00	.08	.51	1.73	4.91	4.44	3.06	2.07	1.80	1.76	2.09	1.22	.00	24.37	
(2)	.03	.02	.01	.01	.00	.01	.05	.18	.51	.46	.32	.22	.19	.18	.22	.13	.00	2.54	
6.1- 8.0	10	14	11	8	3	1	8	72	241	377	286	121	53	59	137	18	0	1419	13.5 – 17.9
(1)	.16	.22	.18	.13	.05	.02	.13	1.15	3.87	6.05	4.59	1.94	.85	.95	2.20	.29	.00	22.76	
(2)	.02	.02	.02	.01	.01	.00	.01	.12	.40	.63	.48	.20	.09	.10	.23	.03	.00	2.38	
8.1-10.0	5	2	1	3	0	0	0	0	6	24	32	2	1	1	1	0	0	78	18.0 – 22.4
(1)	.08	.03	.02	.05	.00	.00	.00	.00	.10	.38	.51	.03	.02	.02	.02	.00	.00	1.25	
(2)	.01	.00	.00	.01	.00	.00	.00	.00	.01	.04	.05	.00	.00	.00	.00	.00	.00	.13	
10.1-89.5	4	3	1	0	0	0	0	0	0	1	1	0	0	0	0	0	0	10	22.5 – 200.2
(1)	.06	.05	.02	.00	.00	.00	.00	.00	.00	.02	.02	.00	.00	.00	.00	.00	.00	.16	
(2)	.01	.01	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.02	
ALL SPEEDS	197	142	118	105	110	117	207	413	889	1015	817	512	388	410	477	317	0	6234	
(1)	3.16	2.28	1.89	1.68	1.76	1.88	3.32	6.62	14.26	16.28	13.11	8.21	6.22	6.58	7.65	5.09	.00	100.00	
(2)	.33	.24	.20	.18	.18	.20	.35	.69	1.49	1.70	1.37	.86	.65	.69	.80	.53	.00	10.44	

(1)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PAGE

(2)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PERIOD

Table 2.3-99 — {CCNPP 197' (60-m) 2000-2006 Annual Joint Frequency Distribution Table}

(Page 7 of 8)

CC JAN00-DEC06 MET DATA JOINT FREQUENCY DISTRIBUTION (60-METER TOWER)

197.0 FT WIND DATA STABILITY CLASS G CLASS FREQUENCY (PERCENT) = 7.48

WIND DIRECTION FROM

SPEED mps	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VRBL	TOTAL	SPEED MPH
LT .2	0	0	0	0	1	0	0	0	0	0	2	1	3	0	2	0	0	9	LT .4
(1)	.00	.00	.00	.00	.02	.00	.00	.00	.00	.00	.04	.02	.07	.00	.04	.00	.00	.20	
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	.00	.00	.00	.00	.02	
.2- .4	2	1	1	0	2	1	3	0	1	2	0	1	2	0	1	1	0	18	.4 - .9
(1)	.04	.02	.02	.00	.04	.02	.07	.00	.02	.04	.00	.02	.04	.00	.02	.02	.00	.40	
(2)	.00	.00	.00	.00	.00	.00	.01	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.03	
.5- 1.0	11	9	10	5	15	9	12	13	4	11	12	11	6	10	13	12	0	163	1.0 – 2.2
(1)	.25	.20	.22	.11	.34	.20	.27	.29	.09	.25	.27	.25	.13	.22	.29	.27	.00	3.65	
(2)	.02	.02	.02	.01	.03	.02	.02	.02	.01	.02	.02	.02	.01	.02	.02	.02	.00	.27	
1.1- 1.5	19	11	20	11	22	13	15	15	13	10	15	20	12	10	12	10	0	228	2.3 – 3.4
(1)	.43	.25	.45	.25	.49	.29	.34	.34	.29	.22	.34	.45	.27	.22	.27	.22	.00	5.11	
(2)	.03	.02	.03	.02	.04	.02	.03	.03	.02	.02	.03	.03	.02	.02	.02	.02	.00	.38	
1.6- 2.0	17	16	12	16	18	8	25	16	29	26	19	17	19	9	14	14	0	275	3.5 – 4.5
(1)	.38	.36	.27	.36	.40	.18	.56	.36	.65	.58	.43	.38	.43	.20	.31	.31	.00	6.16	
(2)	.03	.03	.02	.03	.03	.01	.04	.03	.05	.04	.03	.03	.03	.02	.02	.02	.00	.46	
2.1- 3.0	41	35	18	24	22	26	26	35	48	66	41	54	54	39	40	34	0	603	4.6 – 6.7
(1)	.92	.78	.40	.54	.49	.58	.58	.78	1.08	1.48	.92	1.21	1.21	.87	.90	.76	.00	13.51	
(2)	.07	.06	.03	.04	.04	.04	.04	.06	.08	.11	.07	.09	.09	.07	.07	.06	.00	1.01	
3.1- 4.0	34	13	4	3	7	8	33	49	71	78	92	95	64	62	41	62	0	716	6.8 – 8.9
(1)	.76	.29	.09	.07	.16	.18	.74	1.10	1.59	1.75	2.06	2.13	1.43	1.39	.92	1.39	.00	16.04	
(2)	.06	.02	.01	.01	.01	.01	.06	.08	.12	.13	.15	.16	.11	.10	.07	.10	.00	1.20	
4.1- 5.0	11	1	2	2	1	6	12	51	113	154	164	125	72	68	61	64	0	907	9.0 – 11.2
(1)	.25	.02	.04	.04	.02	.13	.27	1.14	2.53	3.45	3.67	2.80	1.61	1.52	1.37	1.43	.00	20.31	
(2)	.02	.00	.00	.00	.00	.01	.02	.09	.19	.26	.27	.21	.12	.11	.10	.11	.00	1.52	
5.1- 6.0	3	3	1	1	0	5	7	32	138	171	145	85	67	50	57	41	0	806	11.3 – 13.4
(1)	.07	.07	.02	.02	.00	.11	.16	.72	3.09	3.83	3.25	1.90	1.50	1.12	1.28	.92	.00	18.05	
(2)	.01	.01	.00	.00	.00	.01	.01	.05	.23	.29	.24	.14	.11	.08	.10	.07	.00	1.35	
6.1- 8.0	2	4	7	2	0	4	3	39	128	151	96	65	62	50	67	4	0	684	13.5 – 17.9
(1)	.04	.09	.16	.04	.00	.09	.07	.87	2.87	3.38	2.15	1.46	1.39	1.12	1.50	.09	.00	15.32	
(2)	.00	.01	.01	.00	.00	.01	.01	.07	.21	.25	.16	.11	.10	.08	.11	.01	.00	1.15	
8.1-10.0	0	0	2	2	0	0	0	1	2	8	4	11	3	5	3	0	0	41	18.0 – 22.4
(1)	.00	.00	.04	.04	.00	.00	.00	.02	.04	.18	.09	.25	.07	.11	.07	.00	.00	.92	
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	.01	.02	.01	.01	.01	.00	.00	.07	
10.1-89.5	0	3	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	22.5 – 200.2
(1)	.00	.07	.27	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.34	
(2)	.00	.01	.02	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.03	
ALL SPEEDS	140	96	89	66	88	80	136	251	547	677	590	485	364	303	311	242	0	4465	
(1)	3.14	2.15	1.99	1.48	1.97	1.79	3.05	5.62	12.25	15.16	13.21	10.86	8.15	6.79	6.97	5.42	.00	100.00	
(2)	.23	.16	.15	.11	.15	.13	.23	.42	.92	1.13	.99	.81	.61	.51	.52	.41	.00	7.48	

(1)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PAGE

(2)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PERIOD

Table 2.3-99 — {CCNPP 197' (60-m) 2000-2006 Annual Joint Frequency Distribution Table}

(Page 8 of 8)

CC JAN00-DEC06 MET DATA JOINT FREQUENCY DISTRIBUTION (60-METER TOWER)

197.0 FT WIND DATA STABILITY CLASS ALL CLASS FREQUENCY (PERCENT) = 100.00

WIND DIRECTION FROM

SPEED mps	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	VRBL	TOTAL	SPEED MPH
LT .2	0	1	1	1	2	2	0	0	0	1	2	2	4	0	2	0	0	18	LT .4
(1)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	.00	.00	.00	.00	.03	
(2)	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	.00	.00	.00	.00	.03	
.2- .4	6	4	3	1	4	2	5	4	4	2	1	2	4	2	3	2	0	49	.4 - .9
(1)	.01	.01	.01	.00	.01	.00	.01	.01	.01	.00	.00	.00	.01	.00	.01	.00	.00	.08	
(2)	.01	.01	.01	.00	.01	.00	.01	.01	.01	.00	.00	.00	.01	.00	.01	.00	.00	.08	
.5- 1.0	48	42	67	49	82	55	44	56	29	50	41	37	29	35	42	46	0	752	1.0 – 2.2
(1)	.08	.07	.11	.08	.14	.09	.07	.09	.05	.08	.07	.06	.05	.06	.07	.08	.00	1.26	
(2)	.08	.07	.11	.08	.14	.09	.07	.09	.05	.08	.07	.06	.05	.06	.07	.08	.00	1.26	
1.1- 1.5	98	108	108	111	130	81	77	62	57	50	65	61	59	53	57	55	0	1232	2.3 – 3.4
(1)	.16	.18	.18	.19	.22	.14	.13	.10	.10	.08	.11	.10	.10	.09	.10	.09	.00	2.06	
(2)	.16	.18	.18	.19	.22	.14	.13	.10	.10	.08	.11	.10	.10	.09	.10	.09	.00	2.06	
1.6- 2.0	158	226	183	228	262	134	108	86	111	98	146	109	92	72	77	105	0	2195	3.5 – 4.5
(1)	.26	.38	.31	.38	.44	.22	.18	.14	.19	.16	.24	.18	.15	.12	.13	.18	.00	3.68	
(2)	.26	.38	.31	.38	.44	.22	.18	.14	.19	.16	.24	.18	.15	.12	.13	.18	.00	3.68	
2.1- 3.0	695	787	486	562	632	405	382	388	346	376	434	358	289	271	268	314	0	6993	4.6 – 6.7
(1)	1.16	1.32	.81	.94	1.06	.68	.64	.65	.58	.63	.73	.60	.48	.45	.45	.53	.00	11.71	
(2)	1.16	1.32	.81	.94	1.06	.68	.64	.65	.58	.63	.73	.60	.48	.45	.45	.53	.00	11.71	
3.1- 4.0	909	795	393	435	444	435	518	700	605	625	774	635	456	469	476	606	0	9275	6.8 – 8.9
(1)	1.52	1.33	.66	.73	.74	.73	.87	1.17	1.01	1.05	1.30	1.06	.76	.79	.80	1.02	.00	15.54	
(2)	1.52	1.33	.66	.73	.74	.73	.87	1.17	1.01	1.05	1.30	1.06	.76	.79	.80	1.02	.00	15.54	
4.1- 5.0	918	600	391	354	288	296	499	1011	833	929	1012	757	526	668	863	896	0	10841	9.0 – 11.2
(1)	1.54	1.01	.66	.59	.48	.50	.84	1.69	1.40	1.56	1.70	1.27	.88	1.12	1.45	1.50	.00	18.16	
(2)	1.54	1.01	.66	.59	.48	.50	.84	1.69	1.40	1.56	1.70	1.27	.88	1.12	1.45	1.50	.00	18.16	
5.1- 6.0	694	488	343	255	132	117	310	943	1023	1122	1150	703	497	706	1040	936	0	10459	11.3 – 13.4
(1)	1.16	.82	.57	.43	.22	.20	.52	1.58	1.71	1.88	1.93	1.18	.83	1.18	1.74	1.57	.00	17.52	
(2)	1.16	.82	.57	.43	.22	.20	.52	1.58	1.71	1.88	1.93	1.18	.83	1.18	1.74	1.57	.00	17.52	
6.1- 8.0	803	756	518	241	82	81	199	851	997	1866	1892	635	440	853	1345	930	0	12489	13.5 – 17.9
(1)	1.35	1.27	.87	.40	.14	.14	.33	1.43	1.67	3.13	3.17	1.06	.74	1.43	2.25	1.56	.00	20.92	
(2)	1.35	1.27	.87	.40	.14	.14	.33	1.43	1.67	3.13	3.17	1.06	.74	1.43	2.25	1.56	.00	20.92	
8.1-10.0	435	428	281	62	8	8	53	235	138	467	529	86	81	417	495	253	0	3976	18.0 – 22.4
(1)	.73	.72	.47	.10	.01	.01	.09	.39	.23	.78	.89	.14	.14	.70	.83	.42	.00	6.66	
(2)	.73	.72	.47	.10	.01	.01	.09	.39	.23	.78	.89	.14	.14	.70	.83	.42	.00	6.66	
10.1-89.5	214	282	173	27	3	6	20	71	25	82	58	20	29	161	177	66	0	1414	22.5 – 200.2
(1)	.36	.47	.29	.05	.01	.01	.03	.12	.04	.14	.10	.03	.05	.27	.30	.11	.00	2.37	
(2)	.36	.47	.29	.05	.01	.01	.03	.12	.04	.14	.10	.03	.05	.27	.30	.11	.00	2.37	
ALL SPEEDS	4978	4517	2947	2326	2069	1622	2215	4407	4168	5668	6104	3405	2506	3707	4845	4209	0	59693	
(1)	8.34	7.57	4.94	3.90	3.47	2.72	3.71	7.38	6.98	9.50	10.23	5.70	4.20	6.21	8.12	7.05	.00	100.00	
(2)	8.34	7.57	4.94	3.90	3.47	2.72	3.71	7.38	6.98	9.50	10.23	5.70	4.20	6.21	8.12	7.05	.00	100.00	

(1)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PAGE

(2)=PERCENT OF ALL GOOD OBSERVATIONS FOR THIS PERIOD

Table 2.3-100 — {100-Year Return Period and Historical Maximum Snowfall Events}

Site	100-yr 2-day Snowfall in (mm)	Observed Maximum 2-day Snowfall in (mm)	100-yr Snowfall Converted to Ground Snow Load lb/ft^2(kg/m^2)[1]	Observed Maximum Snowfall Converted to Ground Snow Load lb/ft^2(kg/m^2)[1]
Owings Ferry Landing, MD	21.9 (556.3)	26.5 (673.1)	17.1 (83.4)	20.7 (100.9)
La Plata, MD	22.7 (576.6)	24.0 (609.6)	17.7 (86.4)	18.7 (91.4)
Waldorf Police Barrack, MD	21.8 (553.7)	18.0 (457.2)	17.0 (83.0)	14.0 (68.5)
Solomons, MD	17.2 (436.9)	17.5 (444.5)	13.4 (65.5)	13.7 (66.6)
Prince Frederick, MD	18.1 (459.7)	16.0 (406.4)	14.1 (68.9)	12.5 (60.9)
US Naval Academy, MD	24.4 (619.8)	28.0 (711.2)	19.0 (92.9)	21.8 (106.6)
Cambridge, MD	19.5 (495.3)	26.0 (660.4)	15.2 (74.2)	20.3 (99.0)
Roanoke, VA	27.8 (706.1)	24.9 (632.5)	21.7 (105.8)	19.4 (94.8)
Baltimore Airport, MD	25.9 (657.9)	24.2 (614.7)	20.2 (98.6)	18.9 (92.1)
Fort Meade, MD	27.6 (701.0)	23.0 (584.2)	21.5 (105.1)	17.9 (87.6)
Vienna, MD	20.7 (525.8)	22.0 (558.8)	16.1 (78.8)	17.2 (83.8)
Upper Marlboro, MD	23.6 (599.4)	22.0 (558.8)	18.4 (89.8)	17.2 (83.8)
Royal Oak, MD	22.3 (566.4)	20.3 (515.6)	17.4 (84.9)	15.8 (77.3)
Blackwater Refuge, MD	16.8 (426.7)	19.0 (482.6)	13.1 (64.0)	14.8 (72.3)
Washington/National, VA	18.6 (472.4)	16.6 (421.6)	14.5 (70.8)	12.9 (63.2)
Easton Police Barracks, MD	15.8 (401.3)	16.5 (419.1)	12.3 (60.2)	12.9 (62.8)
Washington/Dulles, VA	16.0 (406.4)	15.4 (391.2)	12.5 (60.9)	12.0 (58.6)
Annapolis Water Works, MD	17.0 (431.8)	15.0 (381.0)	13.3 (64.7)	11.7 (57.1)
Mechanicsville, MD	23.0 (584.2)	21.0 (533.4)	17.9 (87.6)	16.4 (80.0)

[1] - Conversion from snowfall to ground snow load accomplished using Equation 2 from ISG-07

Table 2.3-101 — {Highest Daily Snow Depth}

Site	Highest Daily Snow Depth in (mm)	Date	Ground Snow Load lb/ft^2(kg/m^2)[1]
Owings Ferry Landing, MD	34 (864)	10/31/1997	33.8 (164.8)
Blackwater Refuge, MD	33 (838)	2/3/1966	32.4 (158.2)
Upper Marlboro, MD	30 (762)	2/21/1979	28.5 (139.0)
Mechanicsville, MD	29 (737)	2/19/1979	27.2 (132.7)
Waldorf Police Barrack, MD	27 (686)	2/2/1966	24.7 (120.4)
Royal Oak, MD	27 (686)	2/19/1979	24.7 (120.4)
Baltimore Airport, MD	25 (635)	1/13/1996	22.2 (108.5)
Easton Police Barracks, MD	25 (635)	2/2/1966	22.2 (108.5)
La Plata, MD	24 (610)	2/19/1979	21.0 (102.6)
Vienna, MD	24 (610)	2/20/1979	21.0 (102.6)
Solomons, MD	23 (584)	1/30/1966	19.8 (96.8)
Fort Meade, MD	23 (584)	1/30/1966	19.8 (96.8)
Prince Frederick, MD	22 (559)	1/30/1966	18.7 (91.2)
Cambridge, MD	21 (533)	2/19/1979	17.5 (85.6)
Annapolis Water Works, MD	15 (381)	2/3/1961	11.1 (54.1)
US Naval Academy, MD	14 (356)	2/16/1958	10.1 (49.3)

[1] - Conversion from snowfall to ground snow load accomplished using ISG-07 Equation 1.

Table 2.3-102 — {Tropical Cyclone-Related Extreme Rainfall Events}

Location	Precipitation in (mm)	Storm
Cambridge Water Treatment Plant, MD	10.3 (261.6)	Unnamed September 1935
La Plata, MD	9.8 (248.9)	Doria August 1971
Blackwater Refuge, MD	8.6 (218.4)	Connie August 1955
Annapolis Police Barracks, MD	8.32 (211.3)	Floyd September 1999
Easton Police Barracks, MD	8.26 (209.8)	Unnamed September 1935
Mechanicsville, MD	8.1 (205.7)	Ernesto September 2006
Royal Oak, MD	7.9 (200.7)	Floyd September 1999
Prince Frederick MD	7.43 (188.7)	Connie August 1955
Solomons, MD	7.4 (188.0)	Unnamed September 1935
Preston, MD	7.14 (181.4)	Donna September 1960
Glenn Dale Bell Station, MD	6.98 (177.3)	Connie August 1955
Owings Ferry Landing, MD	6.54 (166.1)	Gloria September 1985
Fort Meade, MD	6.48 (164.6)	Connie August 1955
Waldorf Police Barracks, MD	6.45 (163.8)	Connie August 1955
Washington National Airport, VA	6.11 (155.2)	Agnes June 1972
Crisfield Somers Cove, MD	4.6 (116.8)	Camille August 1969

Note: Table 2.3-102 contains historical tropical cyclone-related extreme rainfall events that have occurred within the site area over a period of record from 1851 through 2008 identified using information from (NOAA, 2009a), (NOAA, 2009b), (SERCC, 2009).

Table 2.3-103 — Record 1-Day Snowfall Events within 50 mile (80 km) of the Site

Site	Highest Daily Snow Depth in (mm)
Owings Ferry Landing, MD	26.0 (660.4)
US Naval Academy, MD	24.0 (609.6)
Cambridge, MD	24.0 (609.6)
Baltimore Airport, MD	22.8 (579.1)
Vienna, MD	22.0 (558.8)
Upper Marlboro, MD	22.0 (558.8)
Mechanicsville, MD	21.0 (533.4)
La Plata, MD	20.0 (508.0)
Royal Oak, MD	20.0 (508.0)
Blackwater Refuge, MD	18.0 (457.2)
Roanoke, VA	16.9 (429.3)
Washington/National VA	16.4 (416.6)
Fort Meade, MD	16.0 (406.4
Easton Police Barracks, MD	16.0 (406.4
Waldorf Police Barrack, MD	15.0 (381.0)
Solomons, MD	15.0 (381.0)
Patuxent River NAS, MD	14.2 (360.7)
Prince Frederick, MD	13.0 (330.2)
Annapolis Water Works, MD	11.5 (292.1)
Washington/Dulles VA	10.6 (269.2)

Note: Table 2.3-103 contains a summary of corroborated record 1-day snowfall events within approximately 50 mi (80 km) of the site occurring during a period of record from 1917 through 1998. (NOAA, 2009b), (NOAA, 2009c), (SERCC, 2009).

Figure 2.3-1 — {Annual Average Number of Tornadoes, 1950 - 1995}

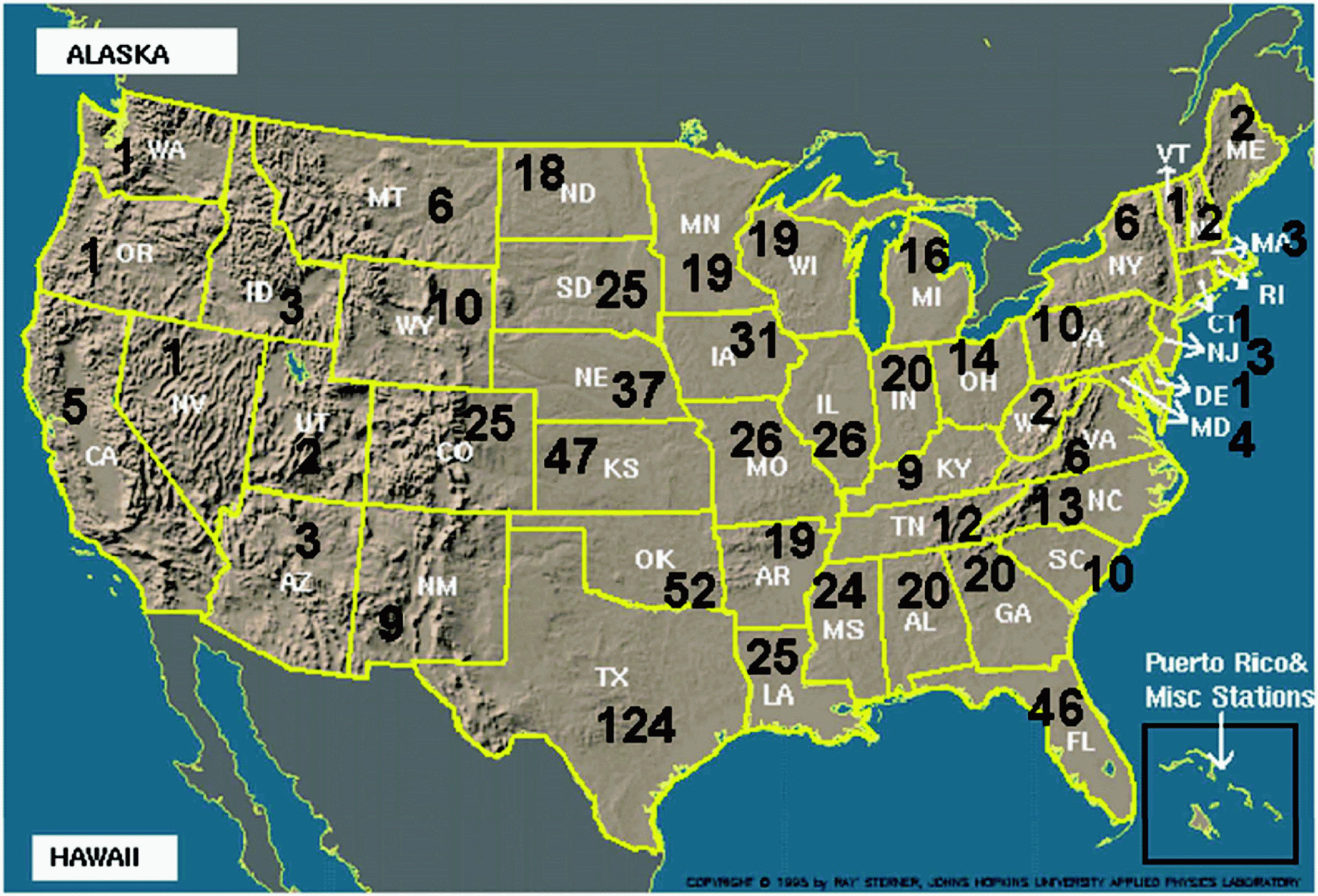


Figure 2.3-2 — {Not Used}

Figure 2.3-3 — {Average Number of Strong-Violent (F2-F5) Tornadoes, 1950 - 1995}

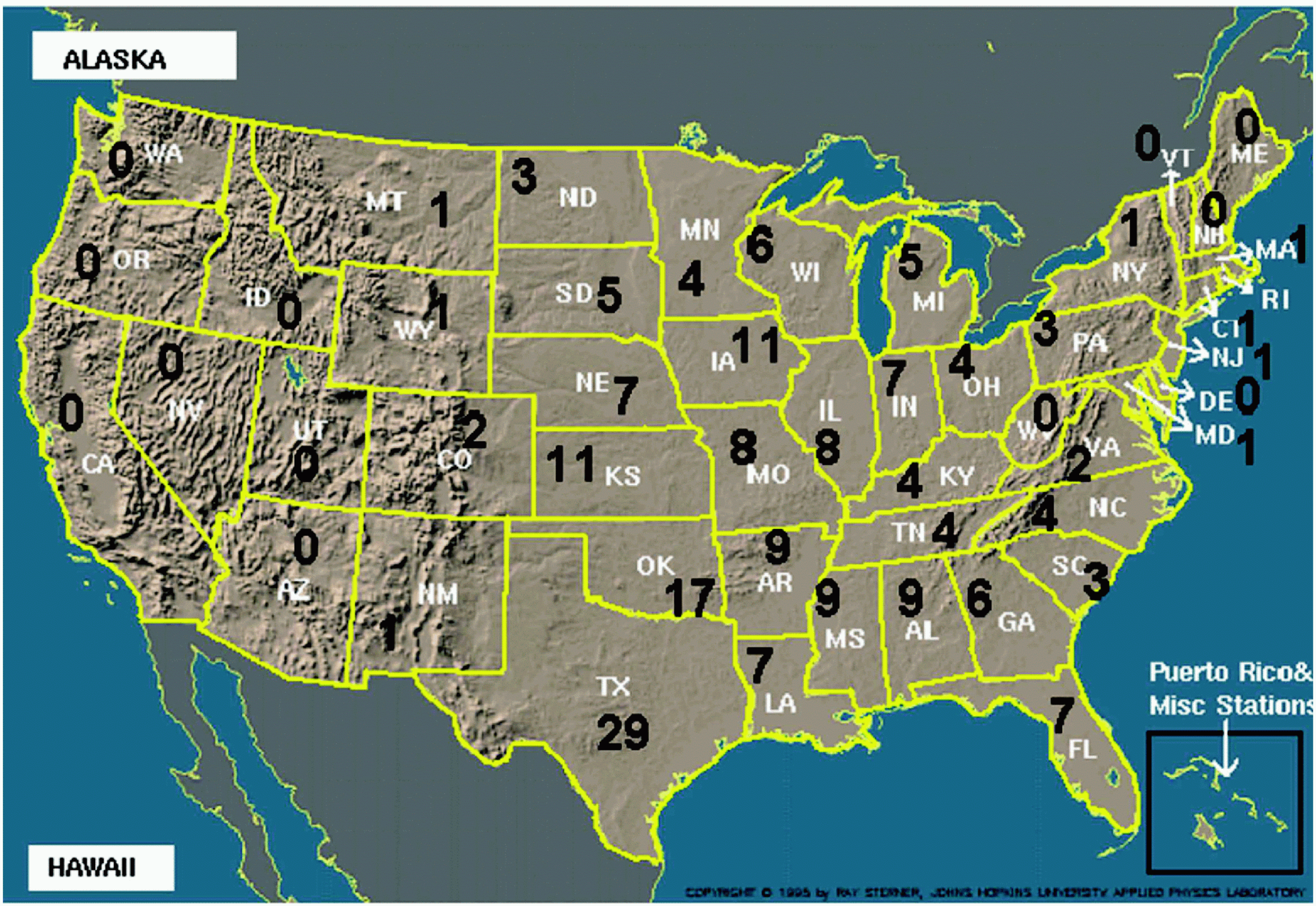


Figure 2.3-4 — {Date of Maximum Tornado Threat}

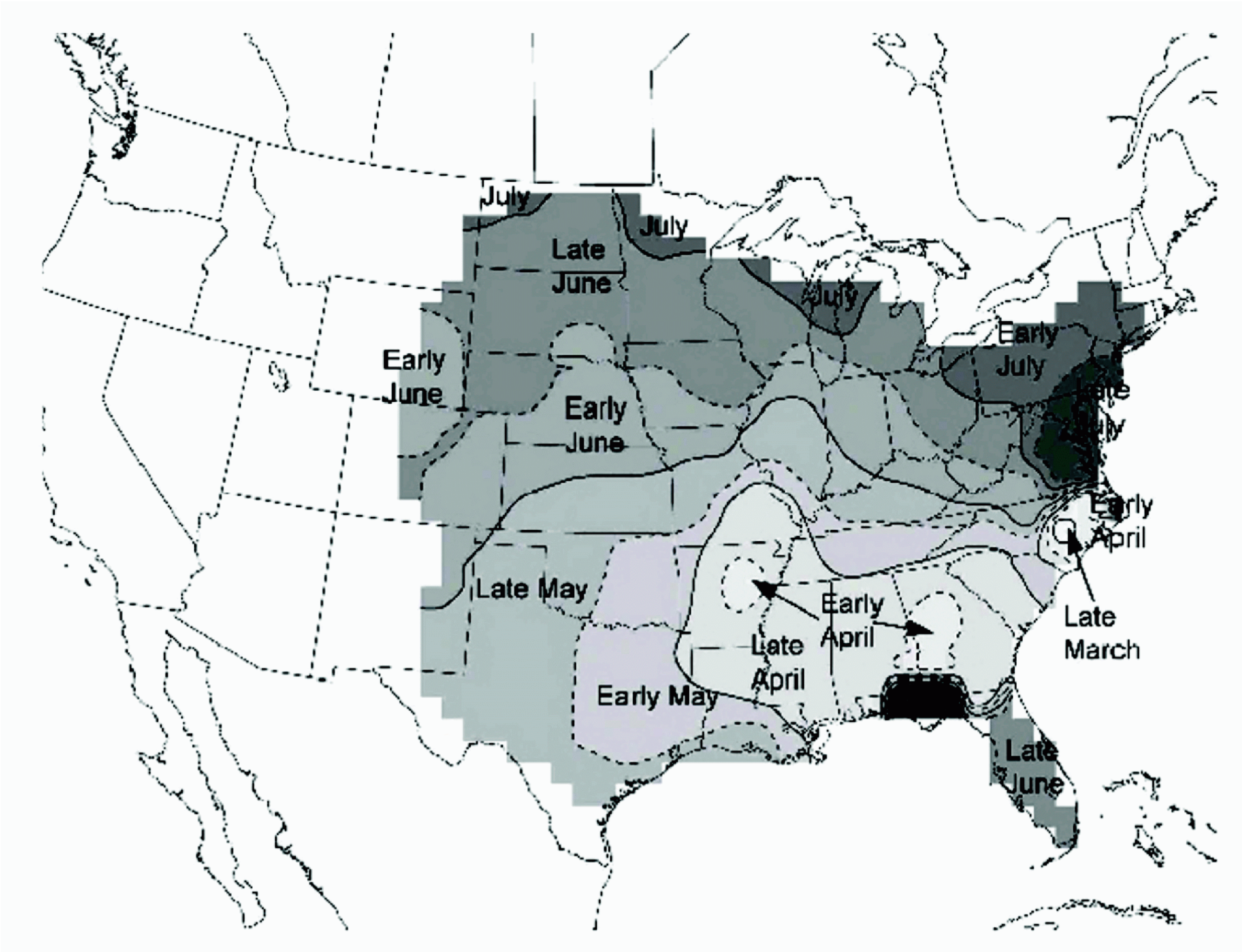


Figure 2.3-5 — {5-Year Lightning Flash Density Map}

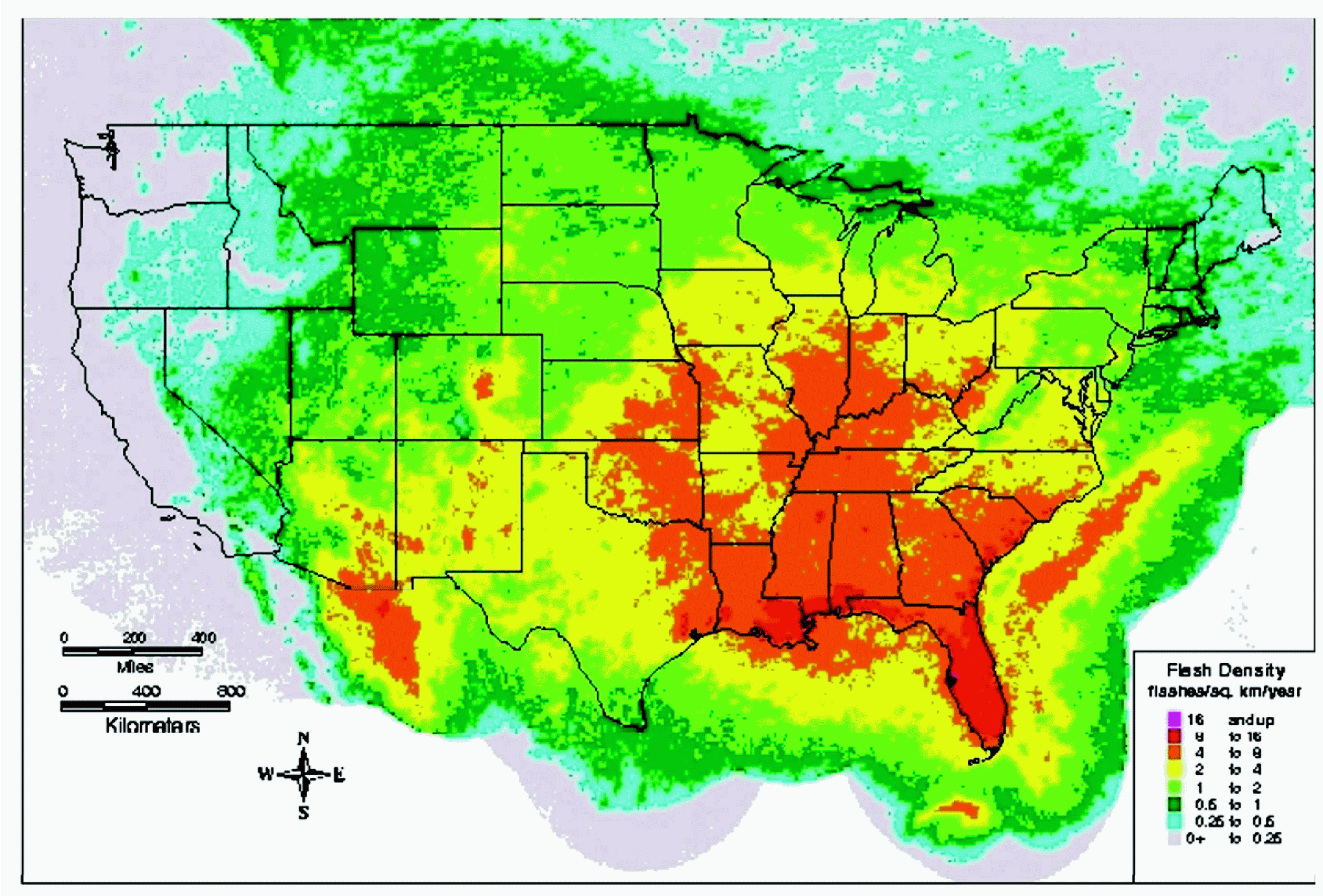


Figure 2.3-6 — {Ozone Concentration for Maryland Counties}

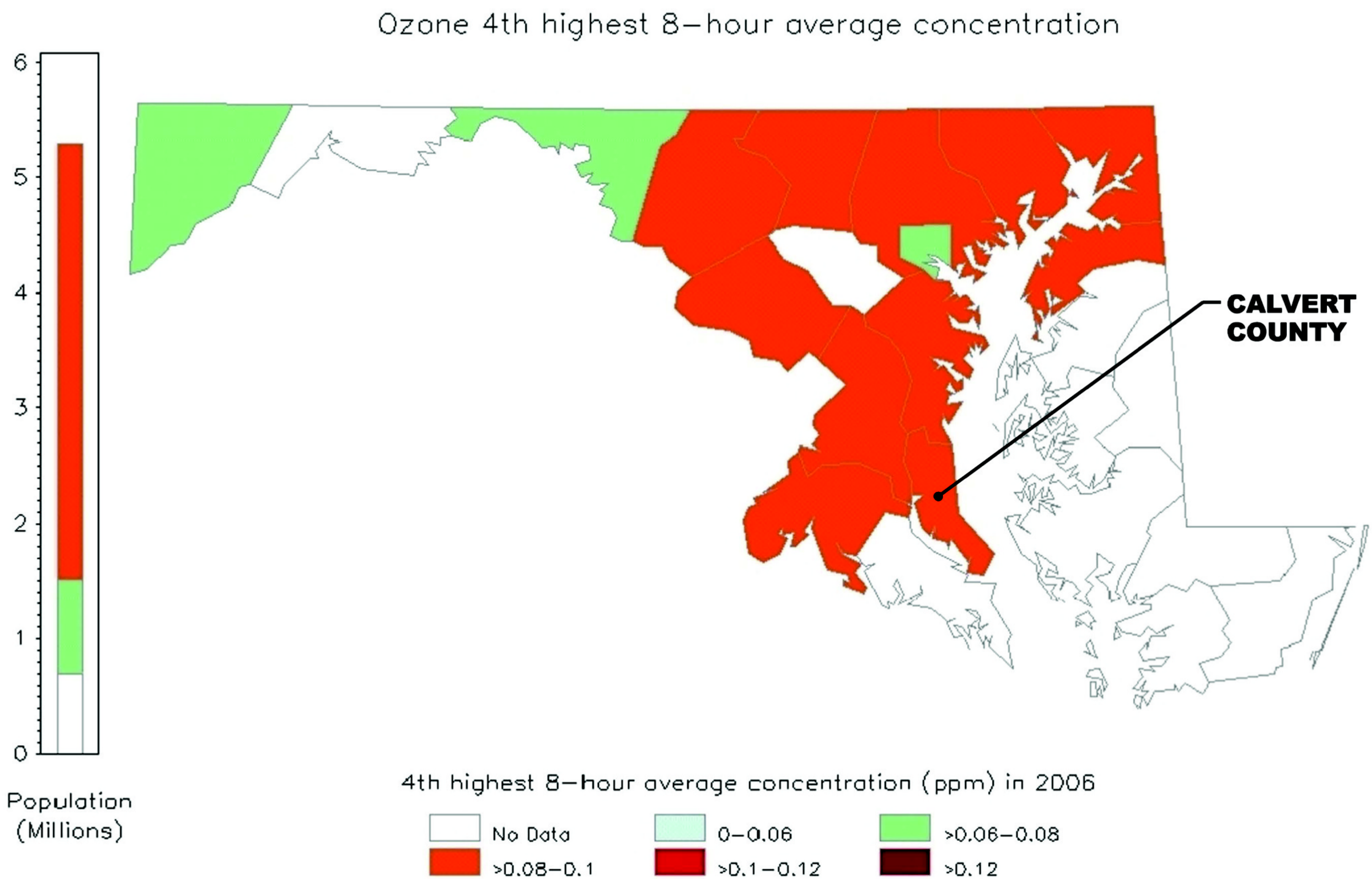


Figure 2.3-7 — {CCNPP 33' (10 m) Annual Wind Rose (2000-2005)}

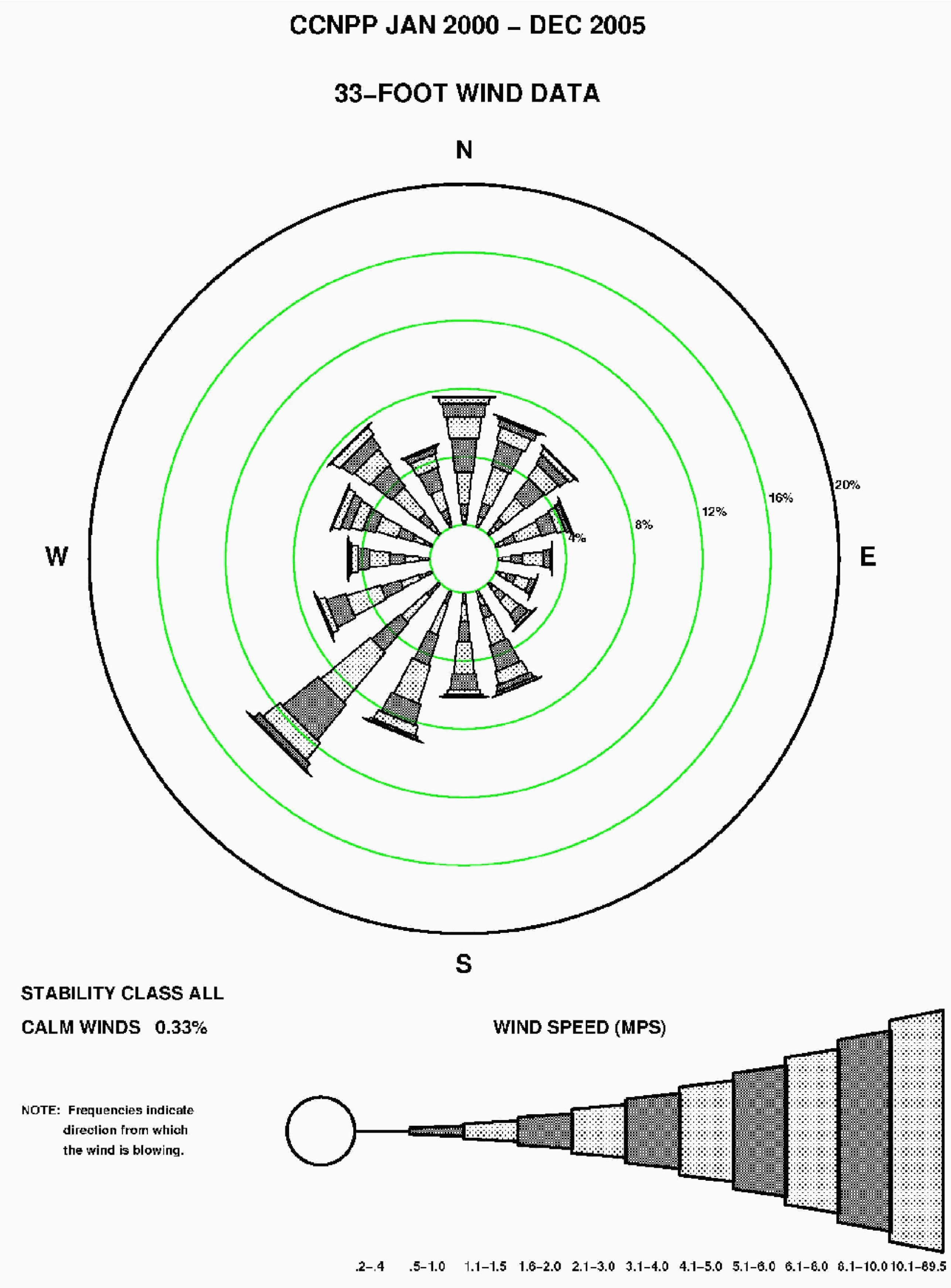


Figure 2.3-8 — {CCNPP 197' (60 m) Annual Wind Rose (2000-2005)}

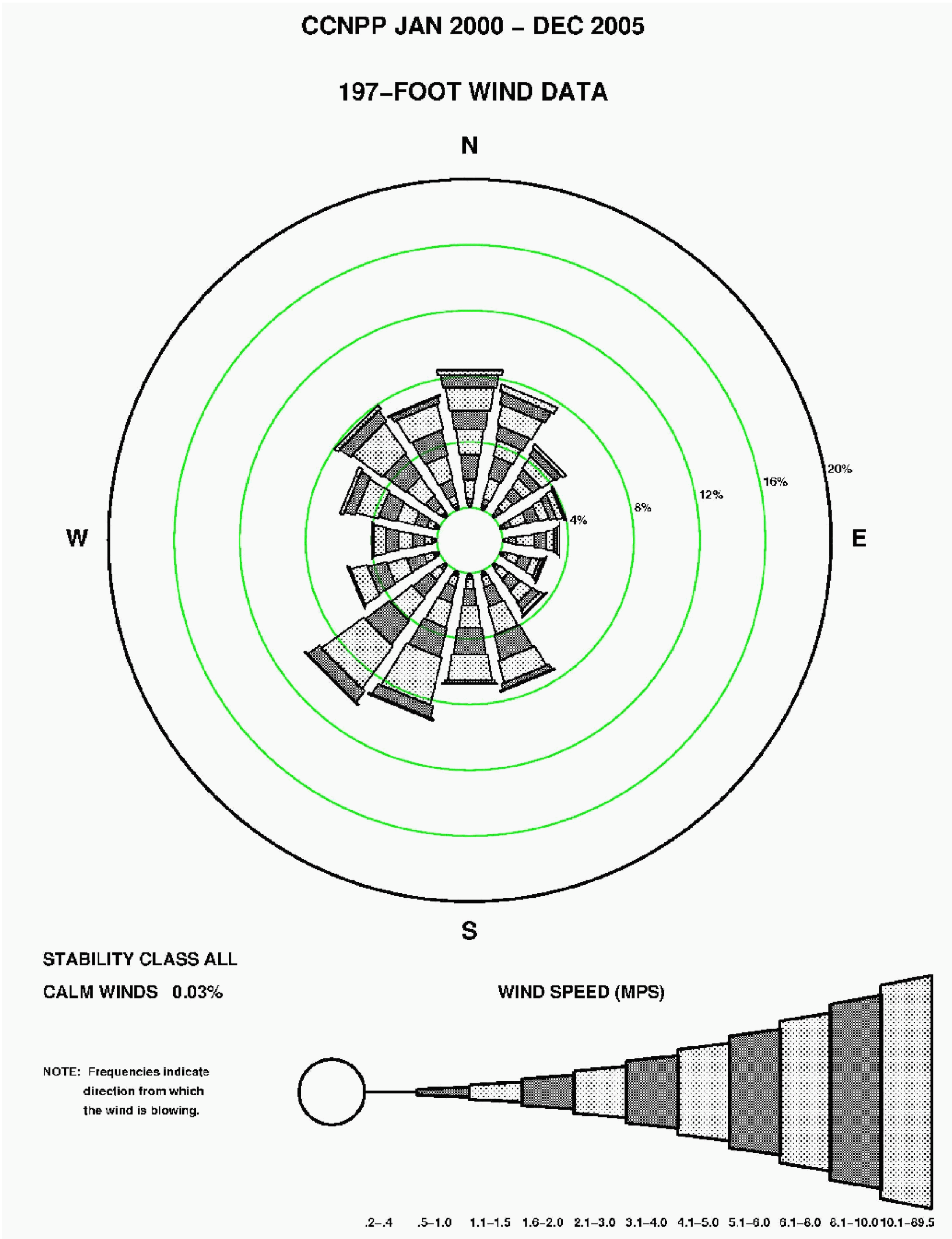


Figure 2.3-9 — {CCNPP 33' (10 m) January Wind Rose (2000-2005)}

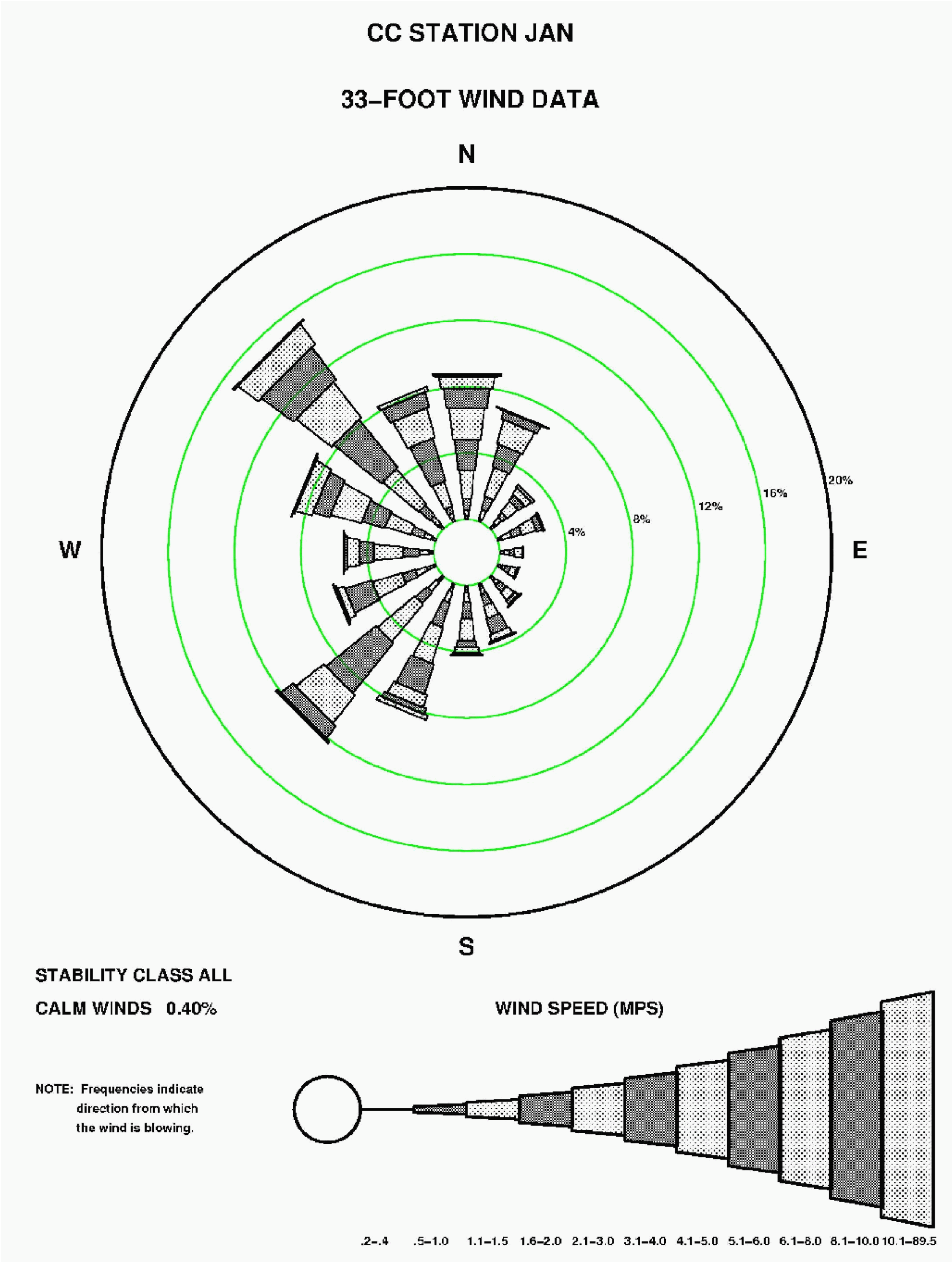


Figure 2.3-10 — {CCNPP 33' (10 m) February Wind Rose (2000-2005)}

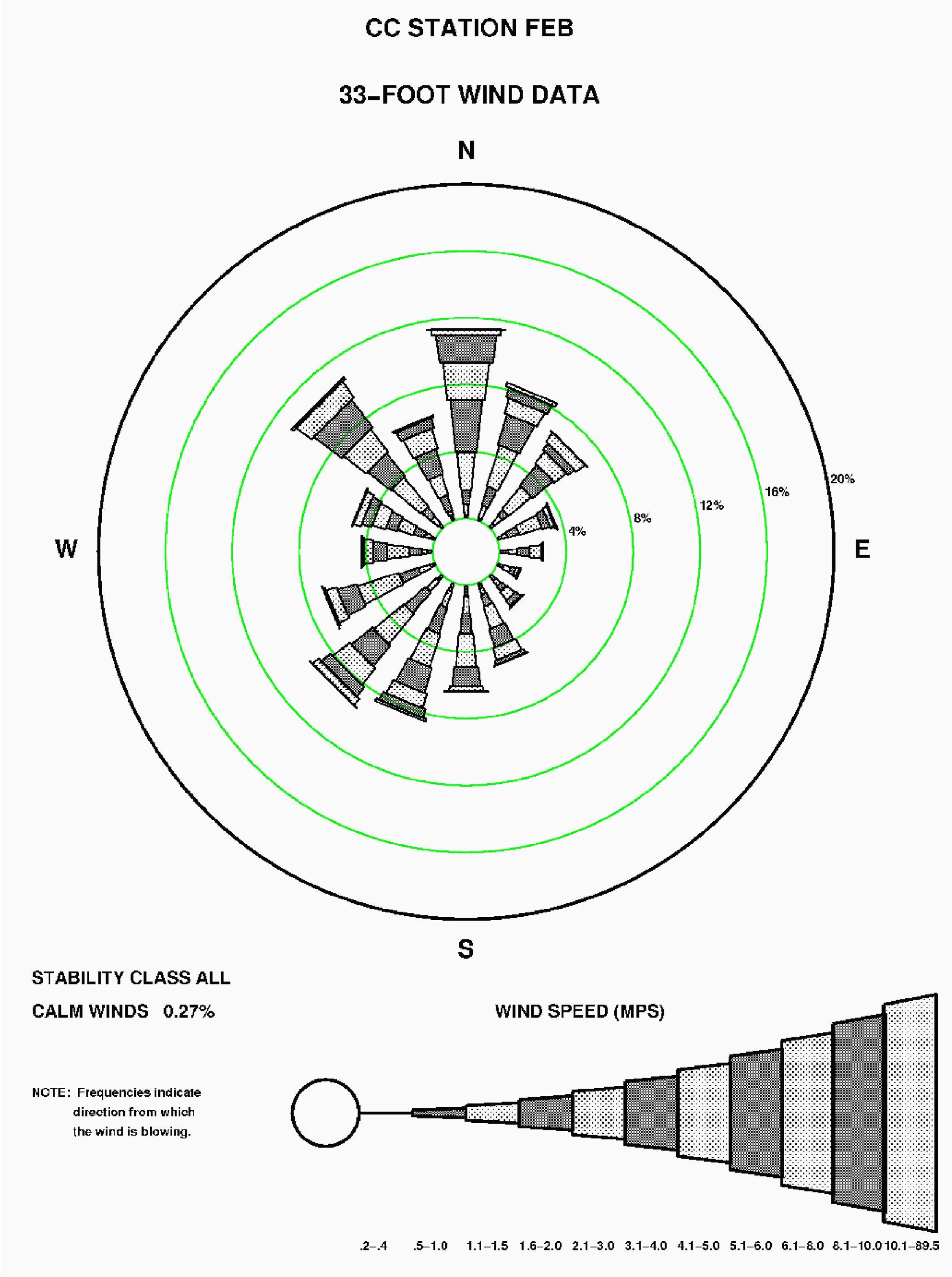


Figure 2.3-11 — {CCNPP 33' (10 m) March Wind Rose (2000-2005)}

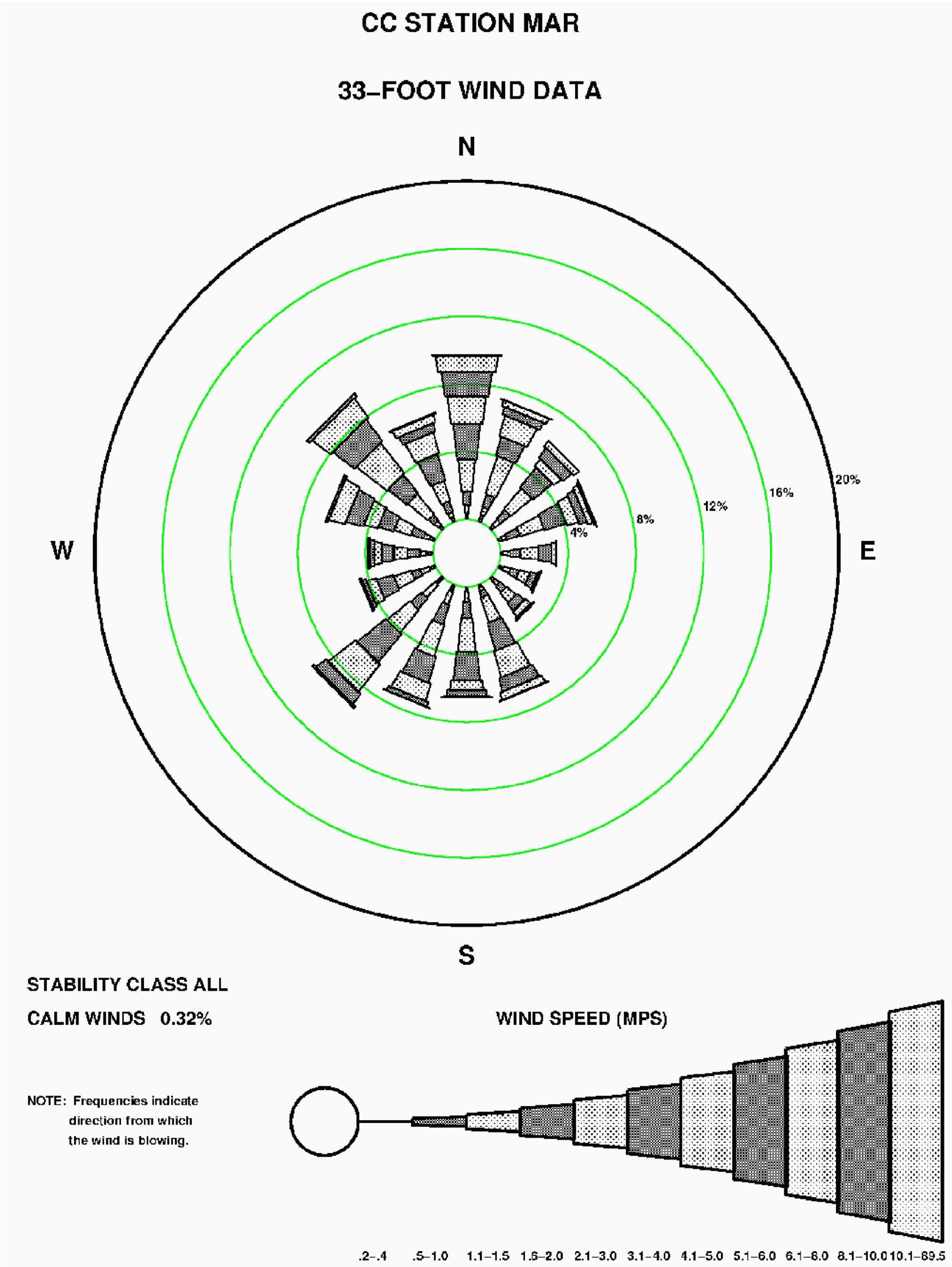


Figure 2.3-12 — {CCNPP 33' (10 m) April Wind Rose (2000-2005)}

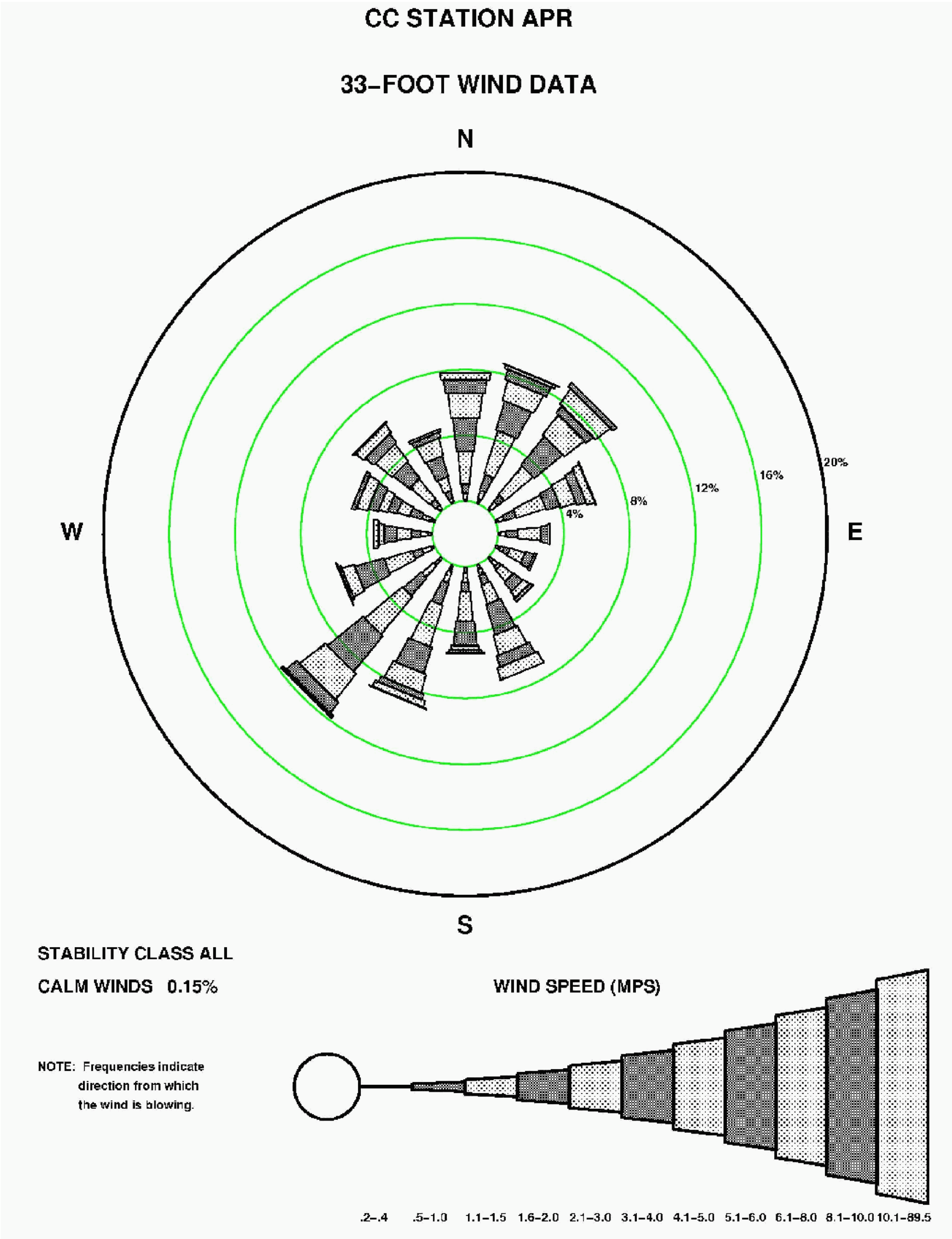


Figure 2.3-13 — {CCNPP 33' (10 m) May Wind Rose (2000-2005)}

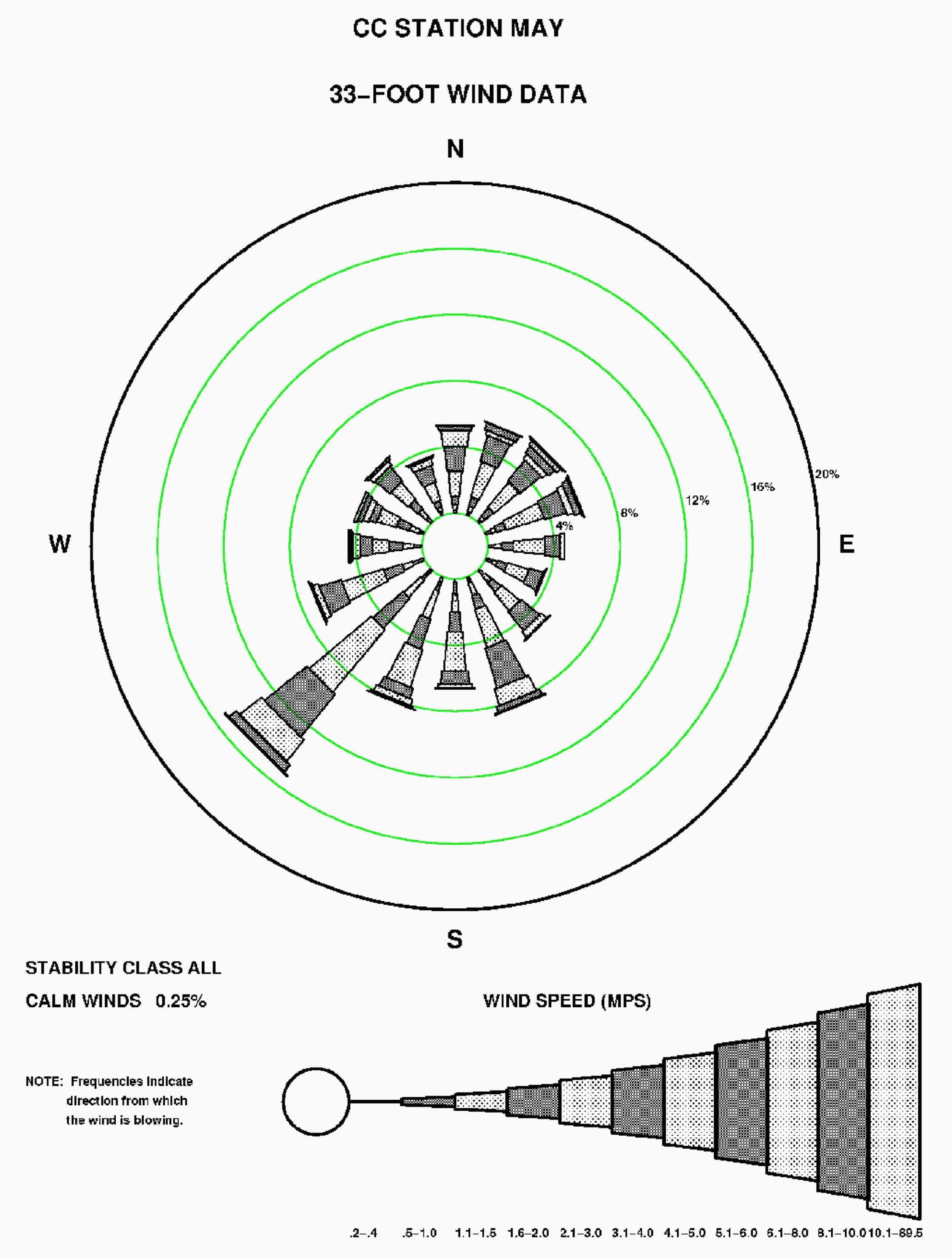


Figure 2.3-14 — {CCNPP 33' (10 m) June Wind Rose (2000-2005)}

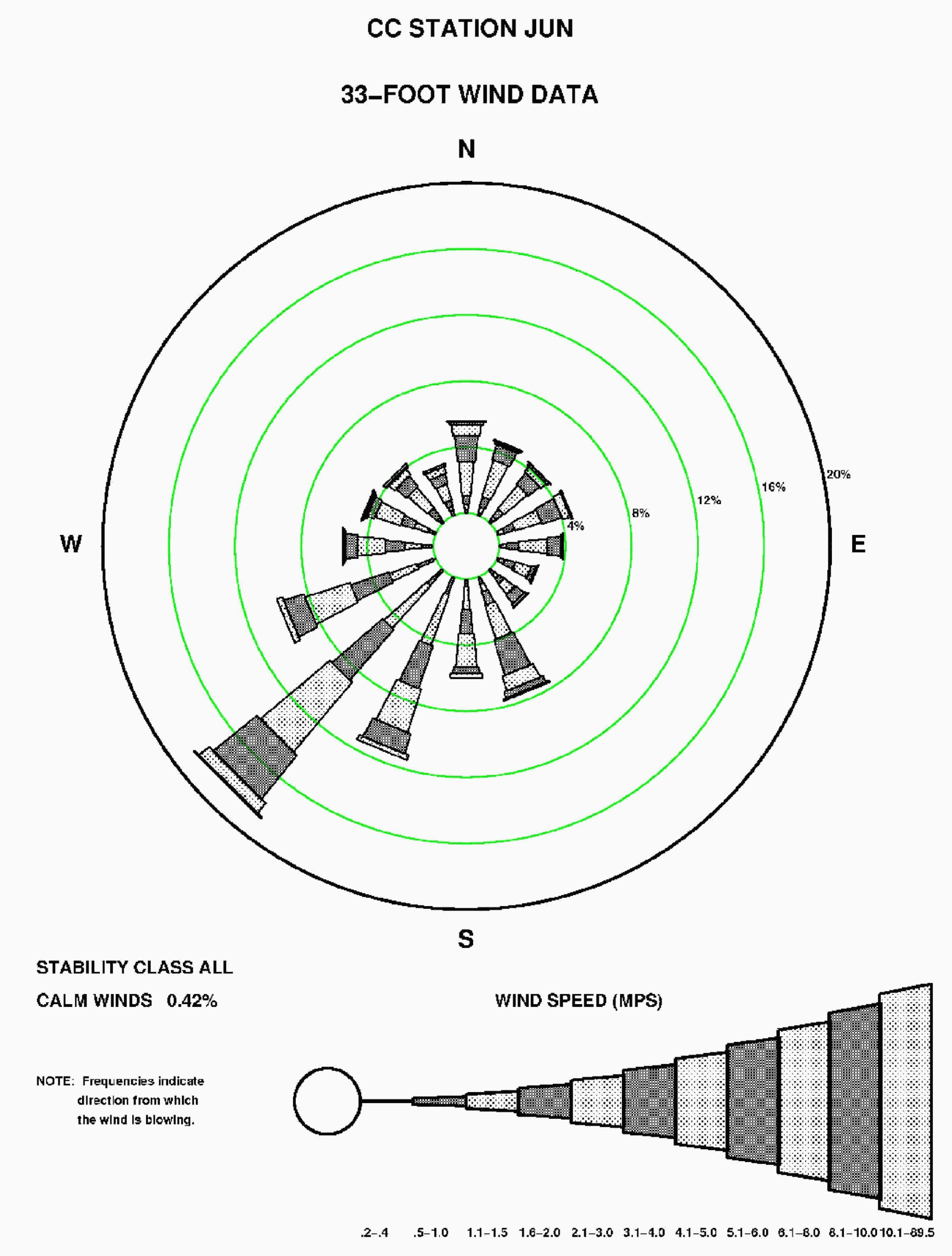


Figure 2.3-15 — {CCNPP 33' (10 m) July Wind Rose (2000-2005)}

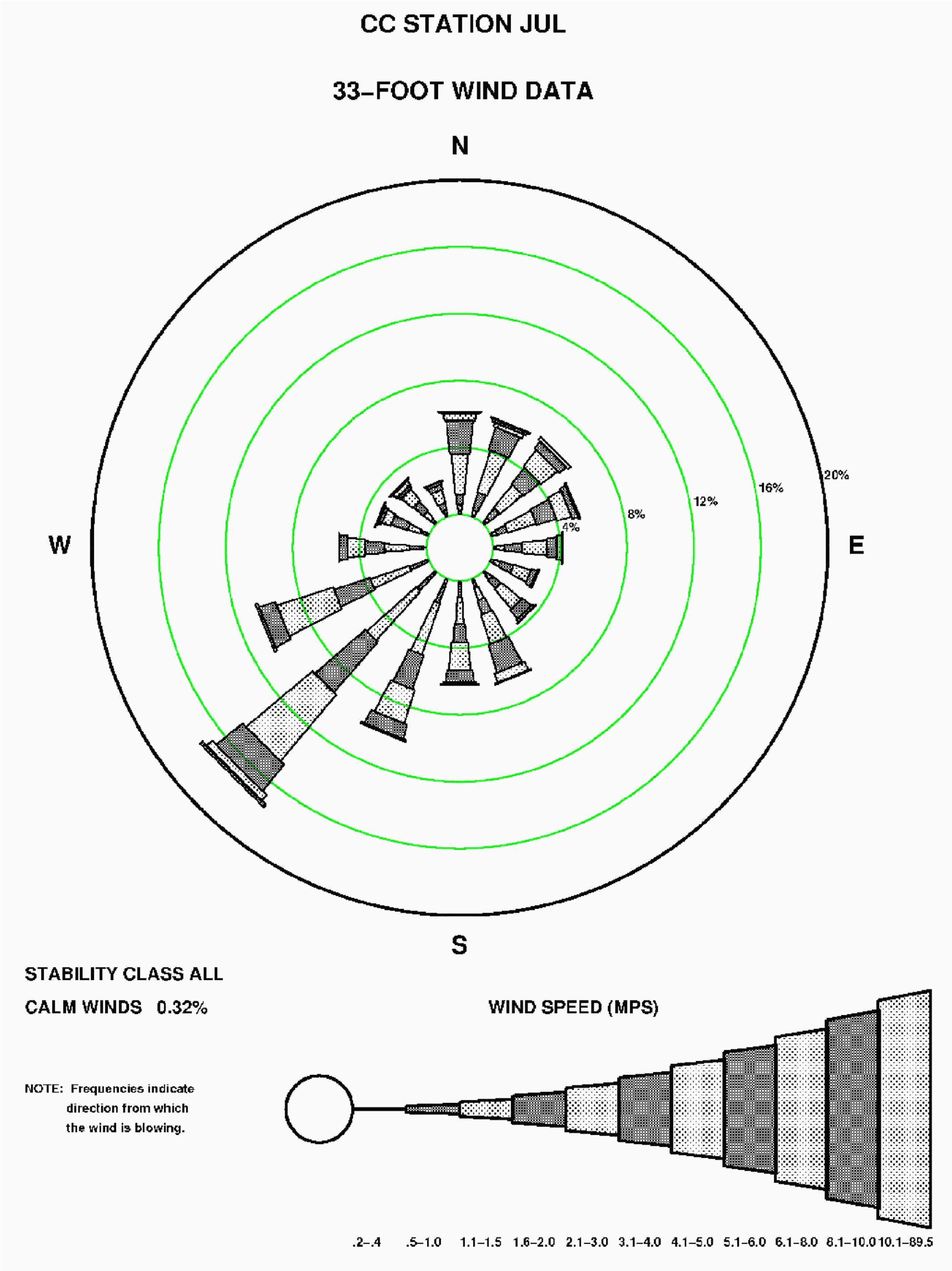


Figure 2.3-16 — {CCNPP 33' (10 m) August Wind Rose (2000-2005)}

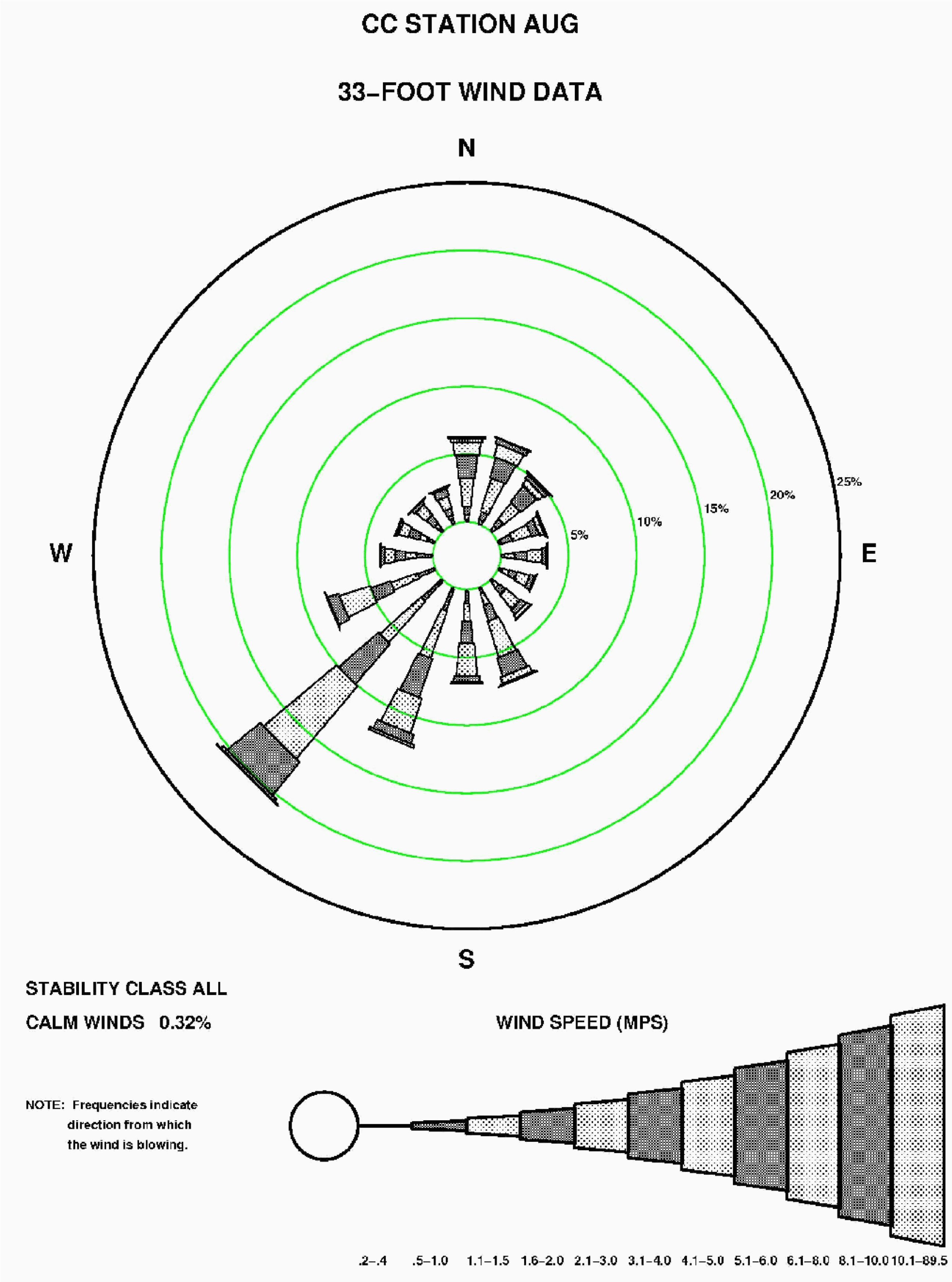


Figure 2.3-17 — {CCNPP 33' (10 m) September Wind Rose (2000-2005)}

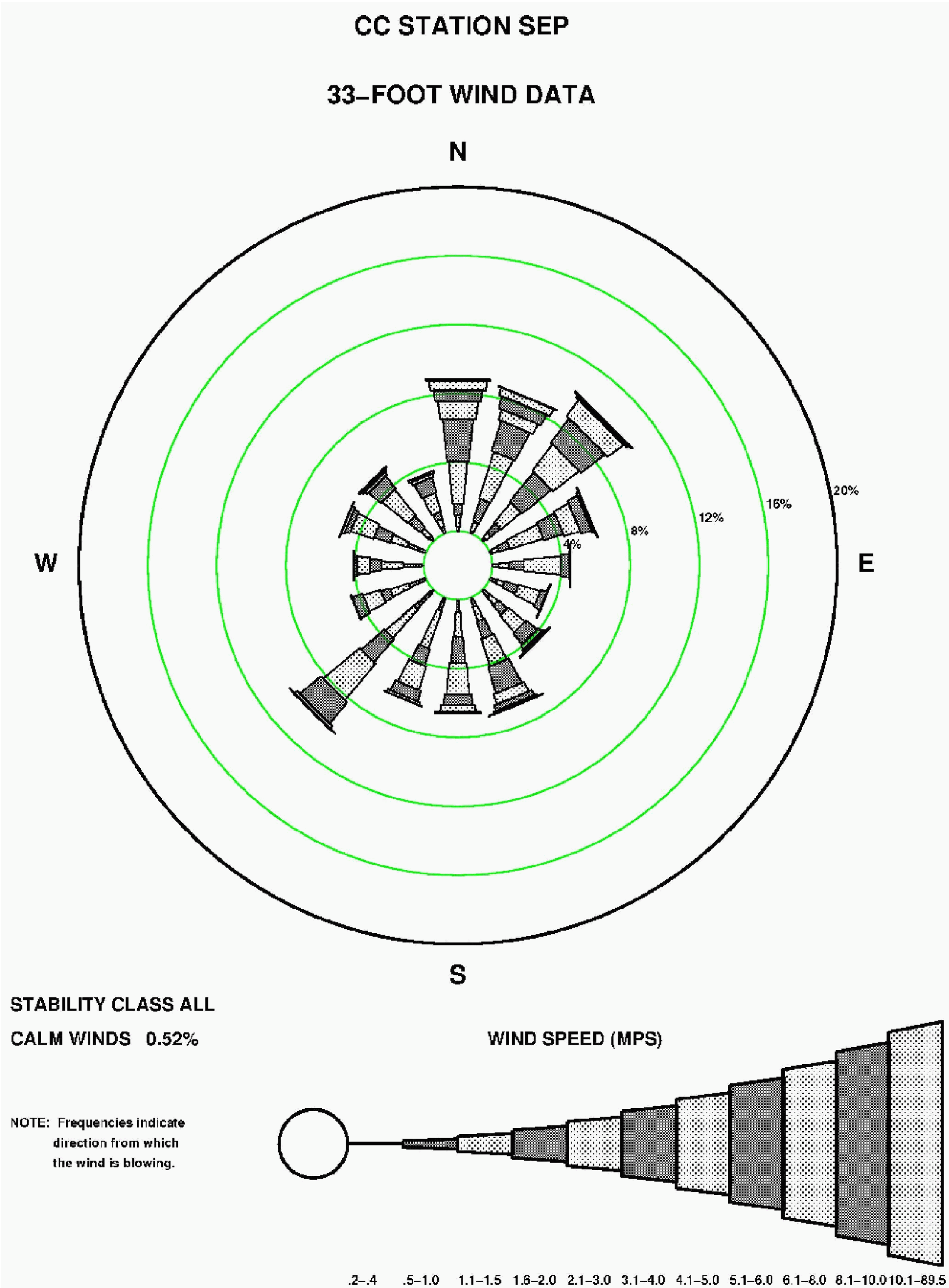


Figure 2.3-18 — {CCNPP 33' (10 m) October Wind Rose (2000-2005)}

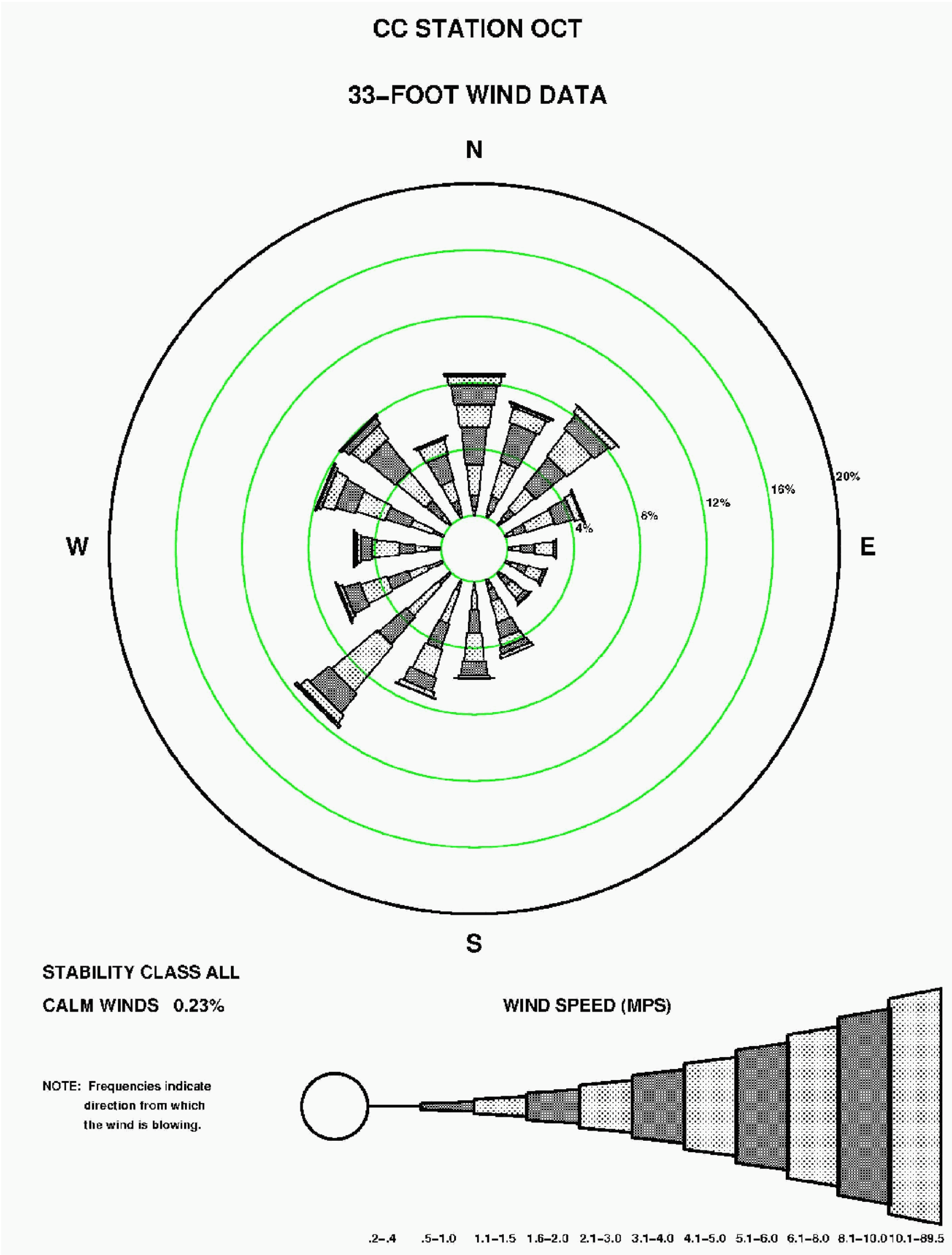


Figure 2.3-19 — {CCNPP 33' (10 m) November Wind Rose (2000-2005)}

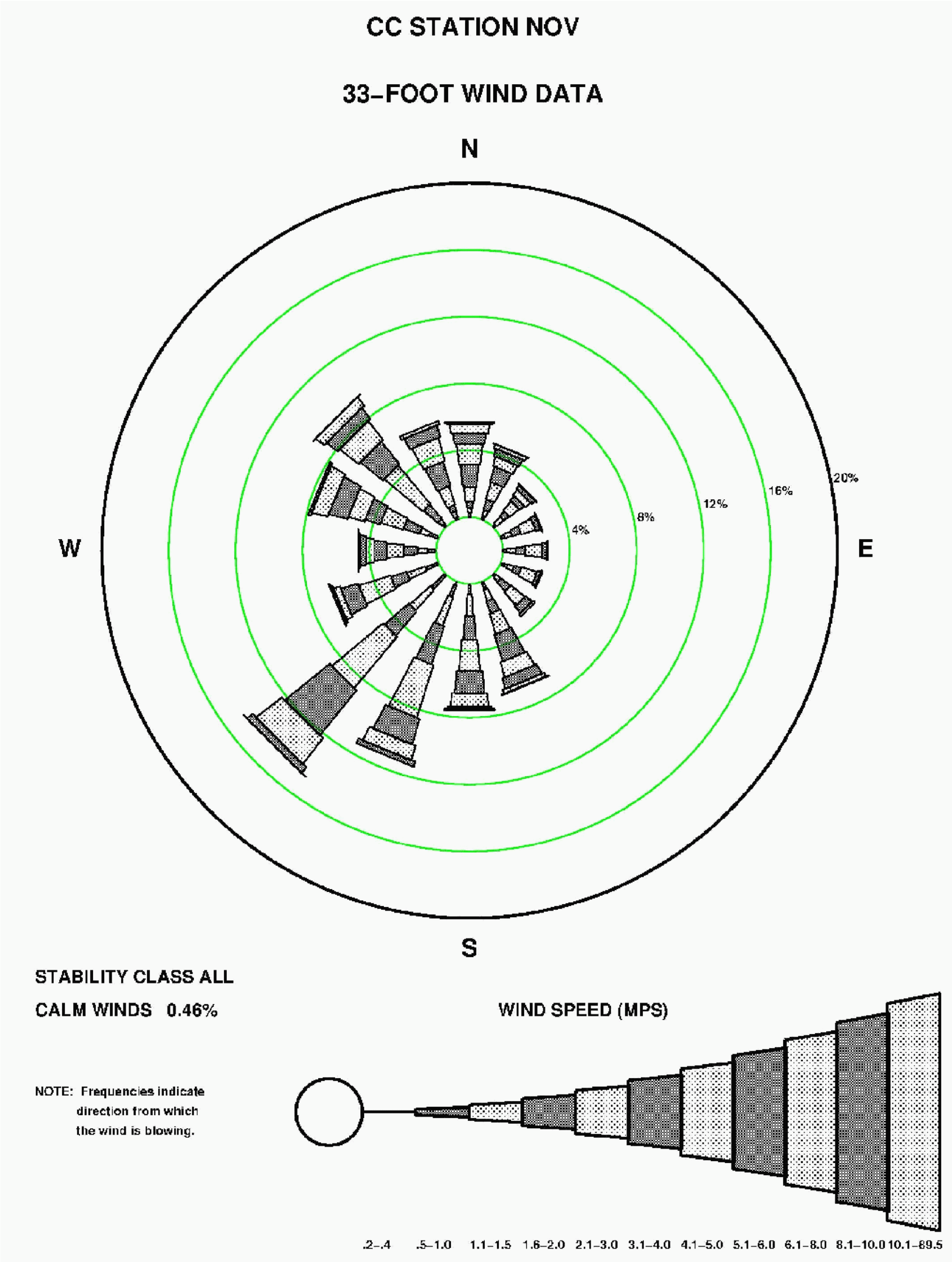


Figure 2.3-20 — {CCNPP 33' (10 m) December Wind Rose (2000-2005)}

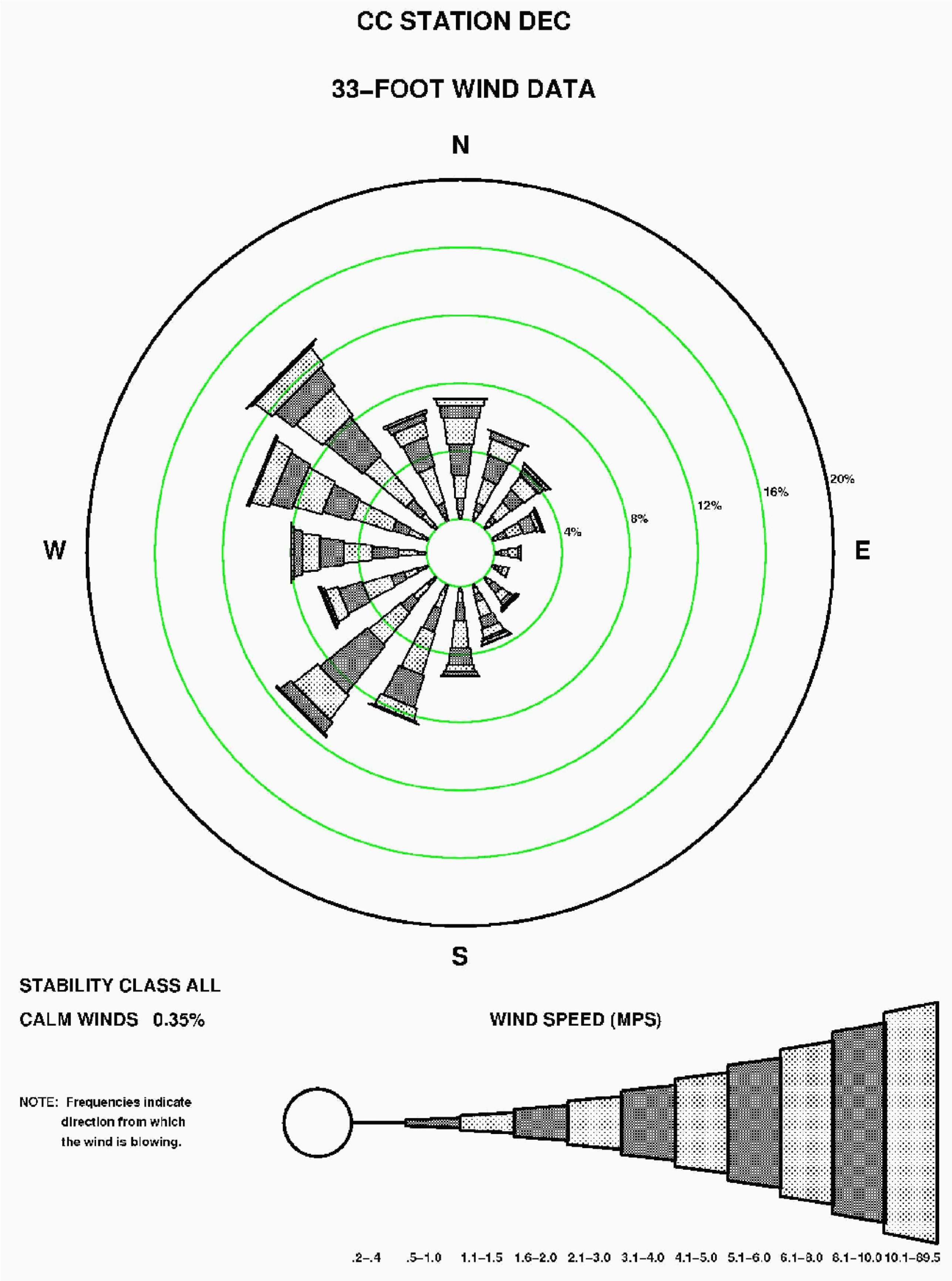


Figure 2.3-21 — {CCNPP 197' (60 m) January Wind Rose (2000-2005)}

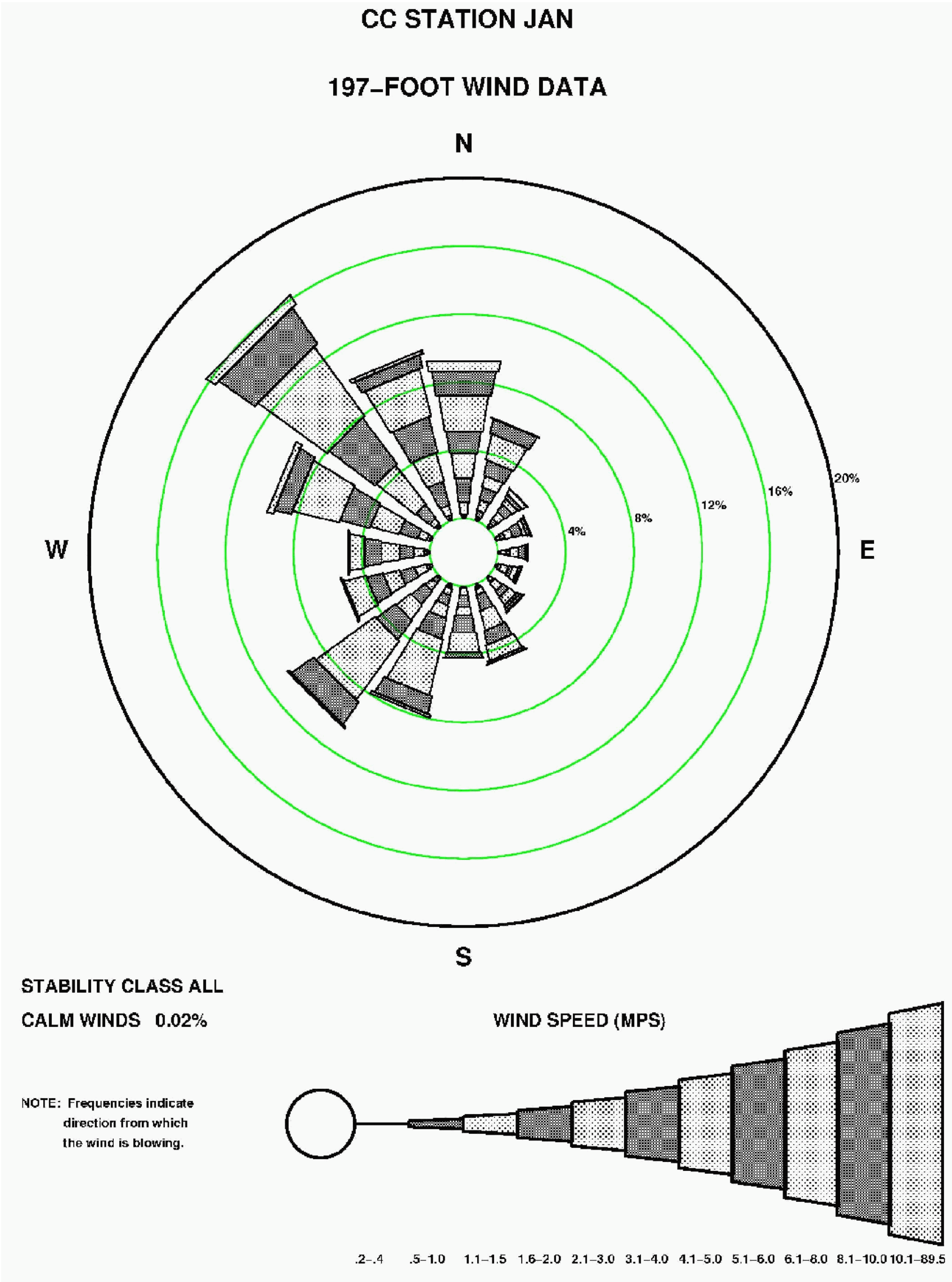


Figure 2.3-22 — {CCNPP 197' (60 m) February Wind Rose (2000-2005)}

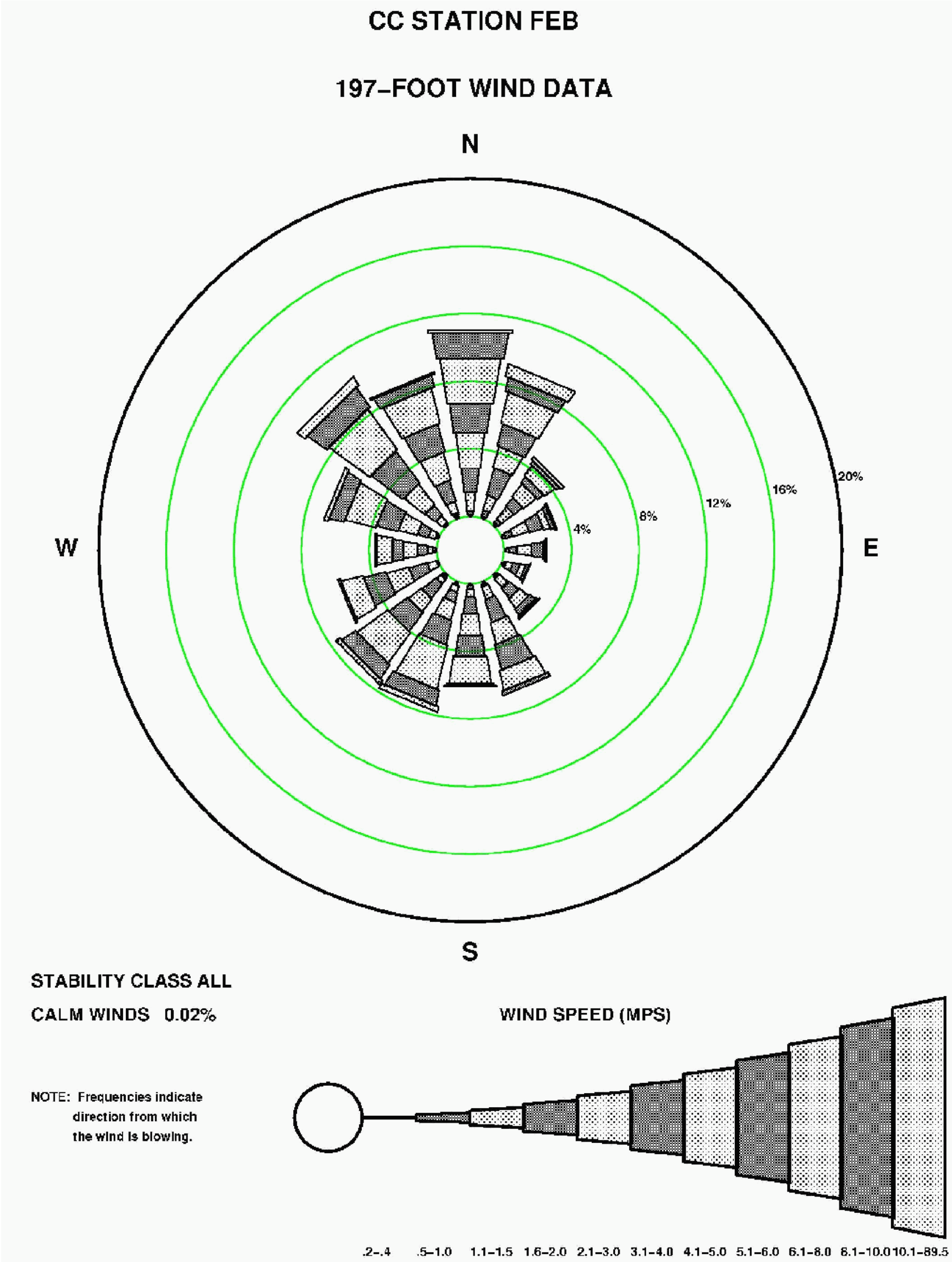


Figure 2.3-23 — {CCNPP 197' (60 m) March Wind Rose (2000-2005)}

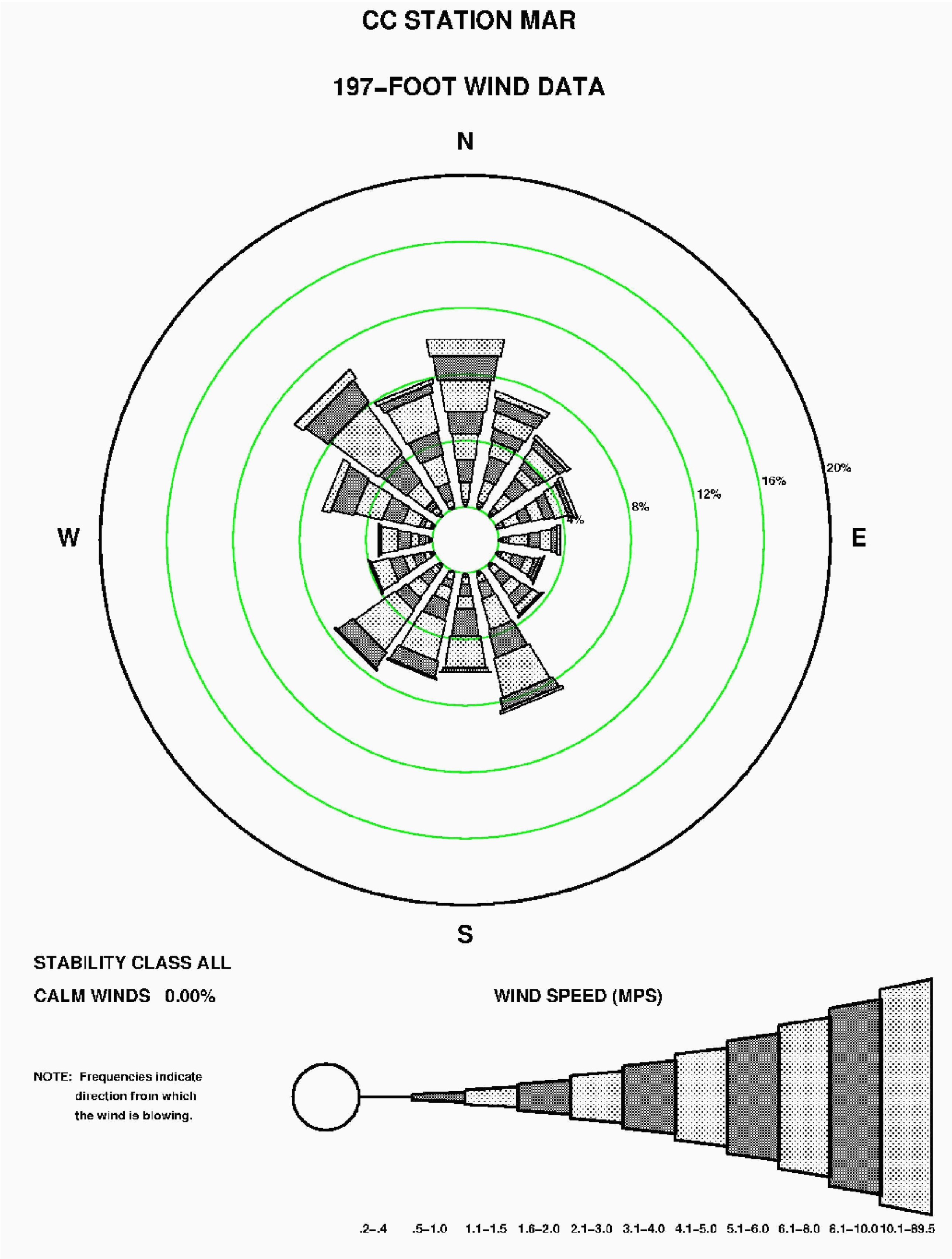


Figure 2.3-24 — {CCNPP 197' (60m) April Wind Rose (2000-2005)}

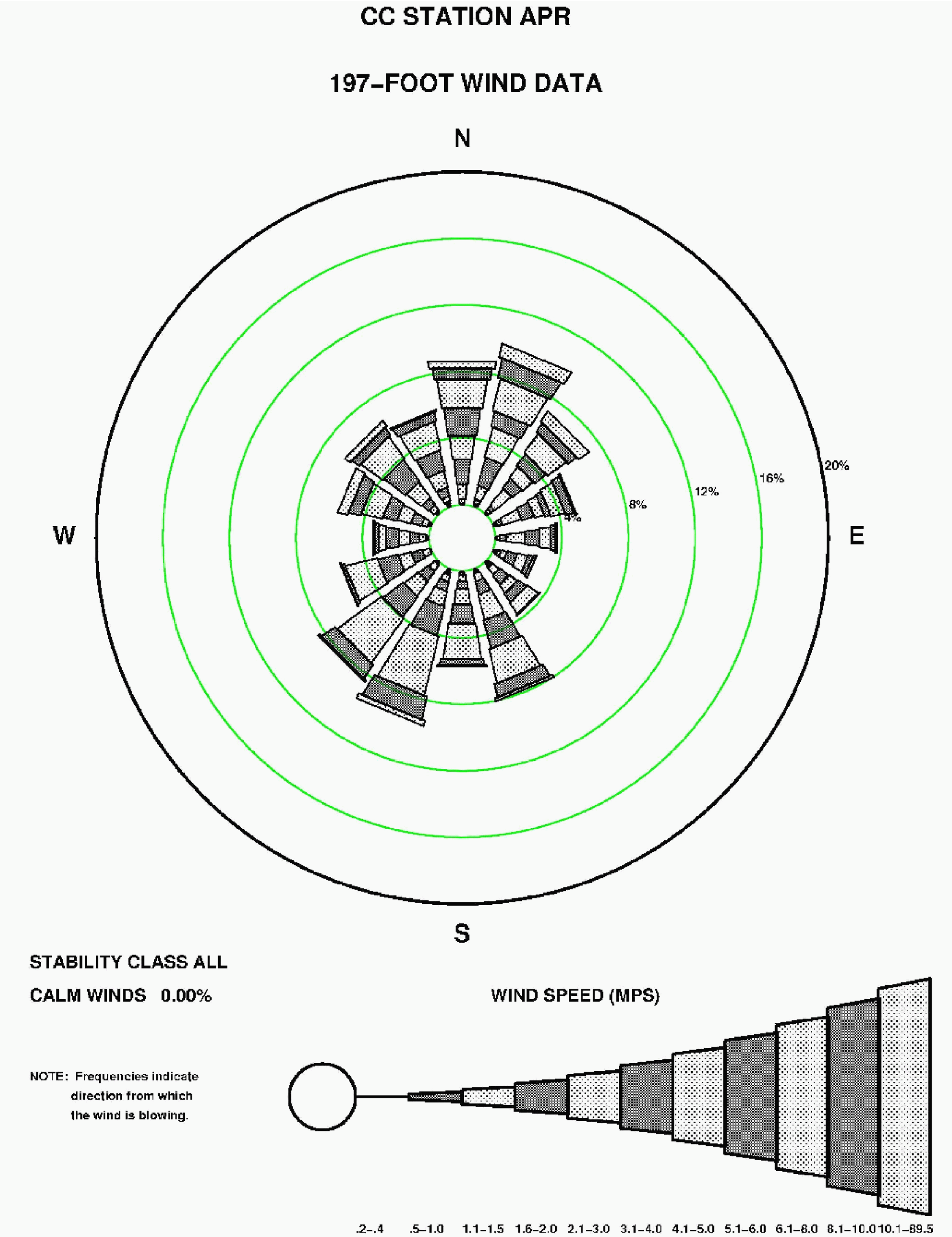


Figure 2.3-25 — {CCNPP 197' (60 m) May Wind Rose (2000-2005)}

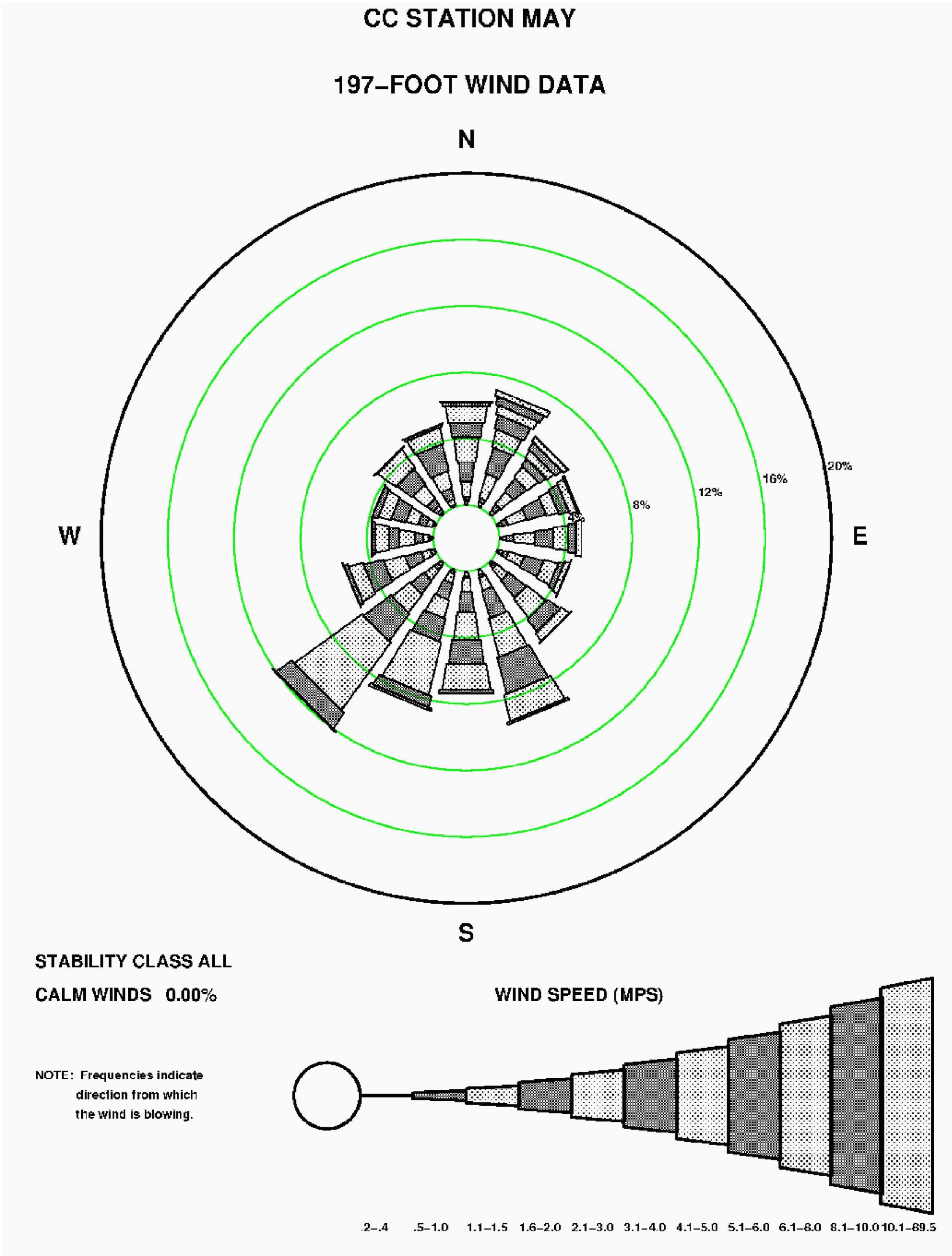


Figure 2.3-26 — {CCNPP 197' (60 m) June Wind Rose (2000-2005)}

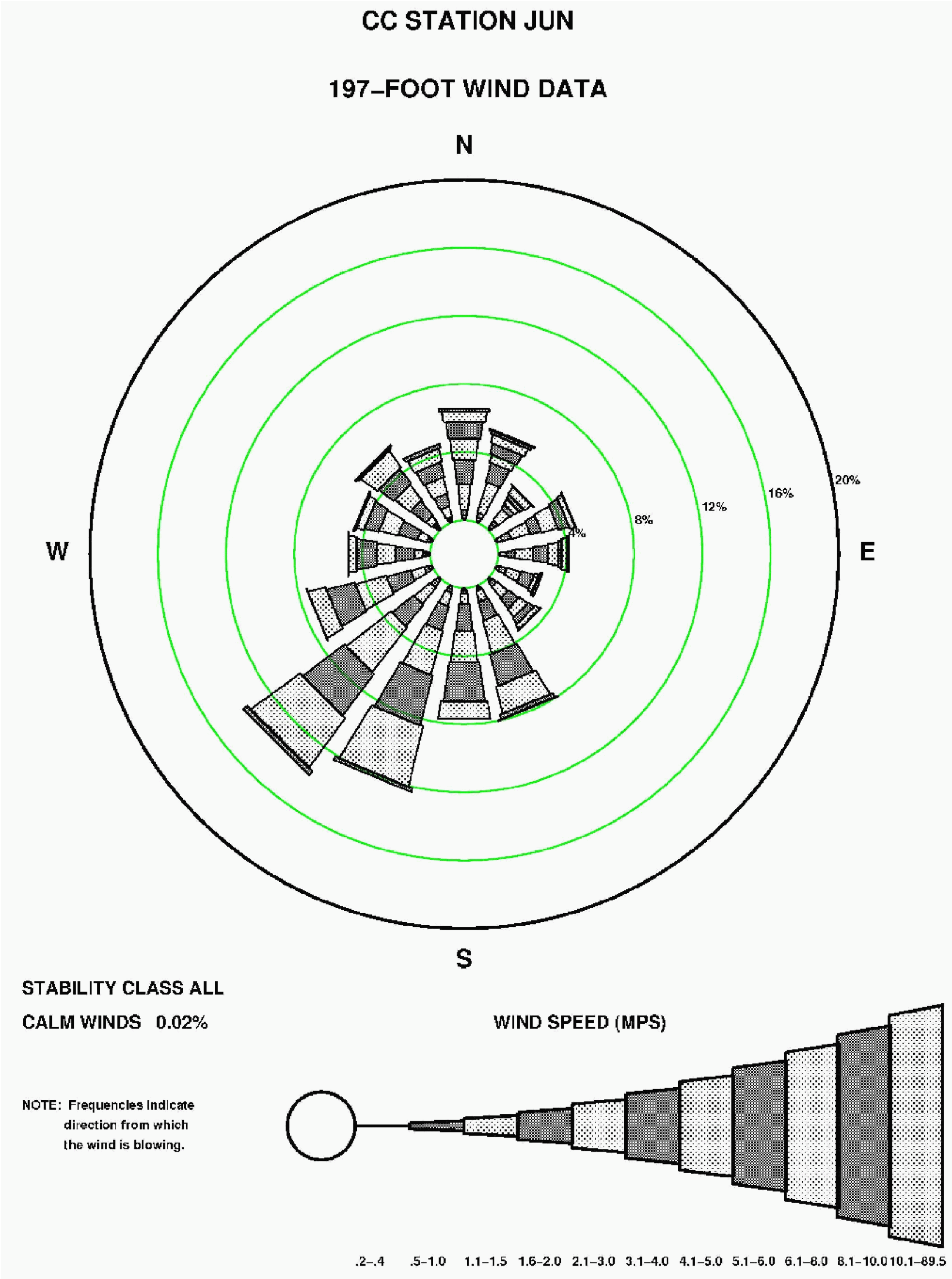


Figure 2.3-27 — {CCNPP 197' (60 m) July Wind Rose (2000-2005)}

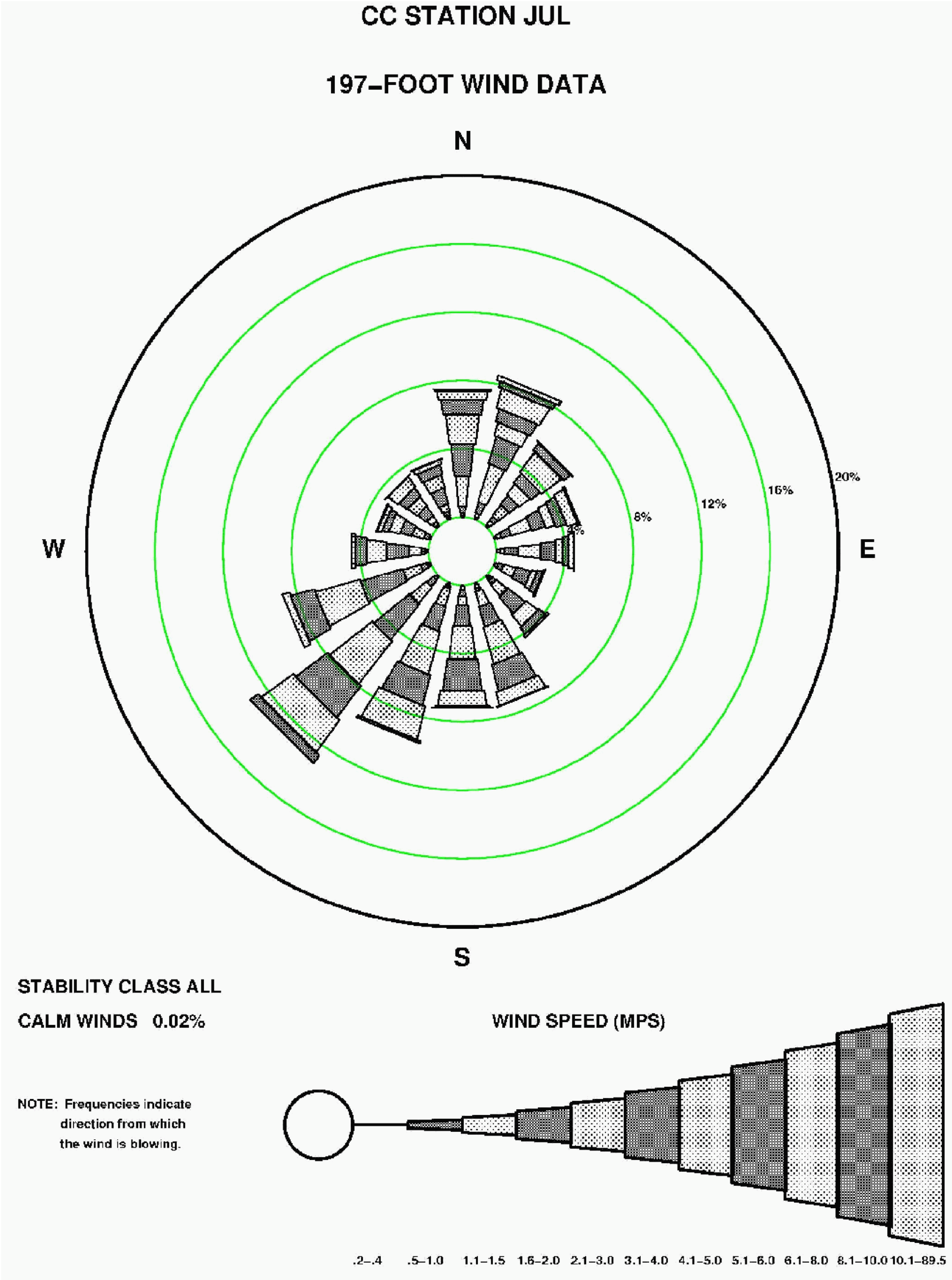


Figure 2.3-28 — {CCNPP 197' (60 m) August Wind Rose (2000-2005)}

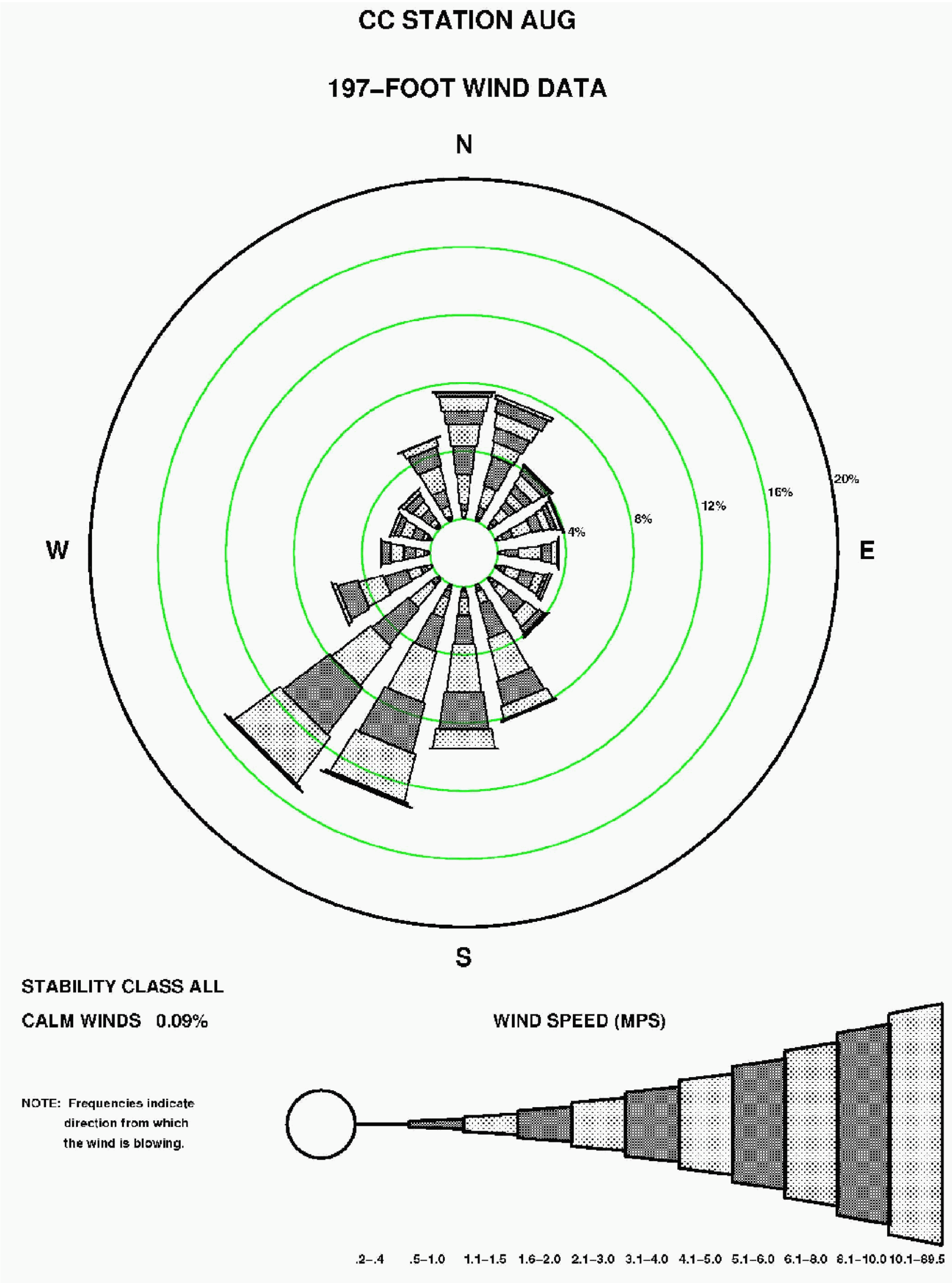


Figure 2.3-29 — {CCNPP 197' (60 m) September Wind Rose (2000-2005)}

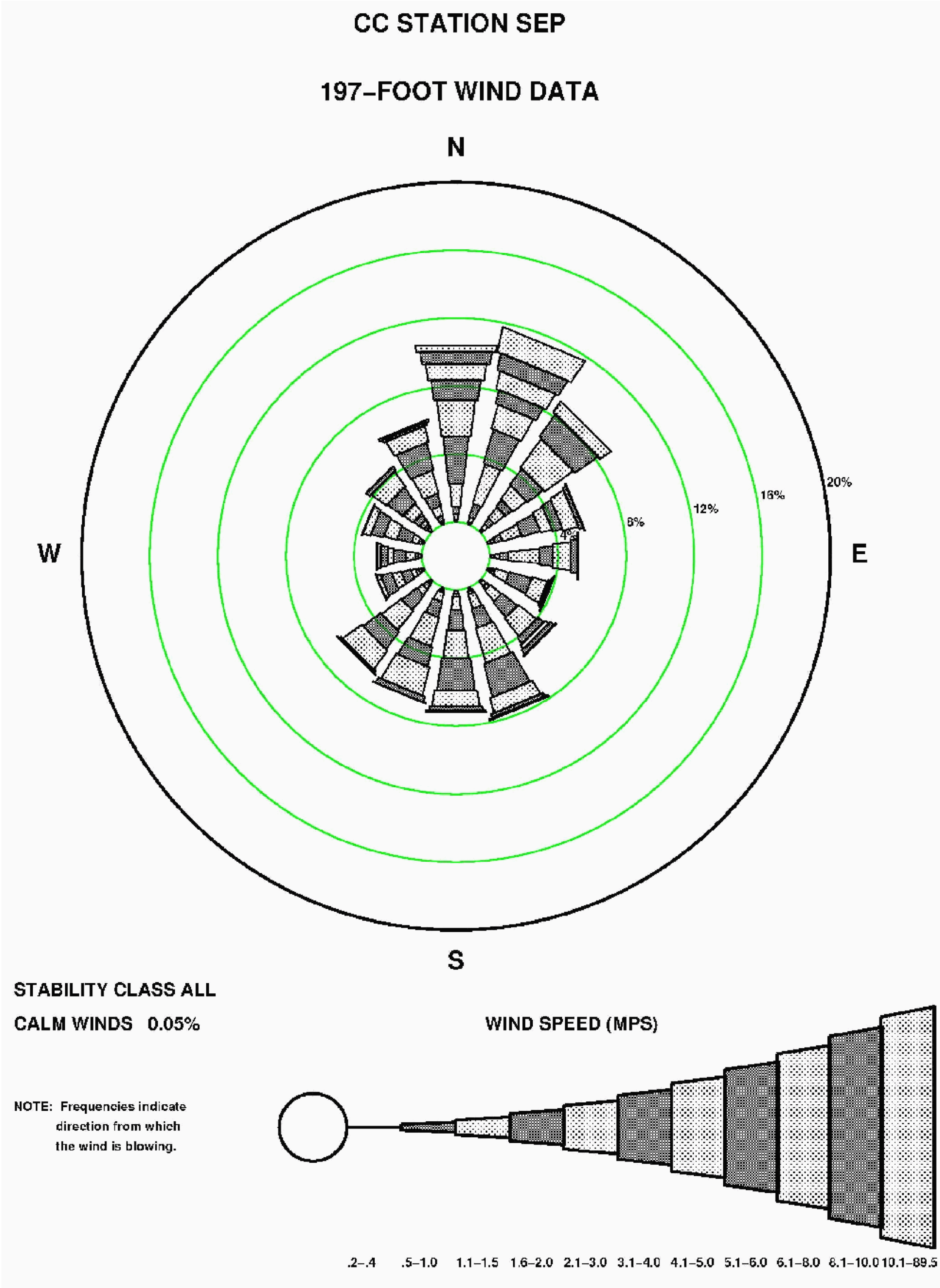


Figure 2.3-30 — {CCNPP 197' (60 m) October Wind Rose (2000-2005)}

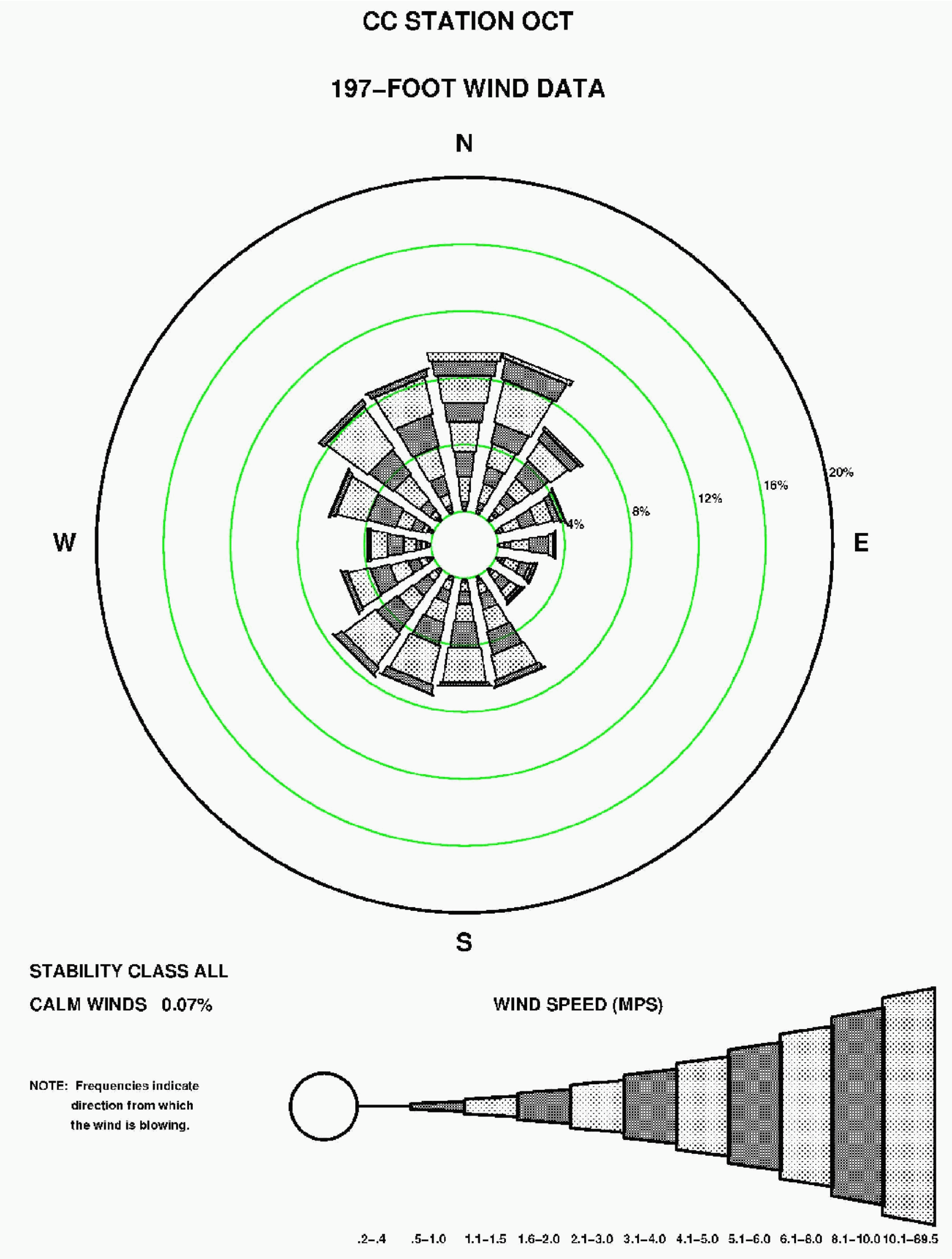


Figure 2.3-31 — {CCNPP 197' (60 m) November Wind Rose (2000-2005)}

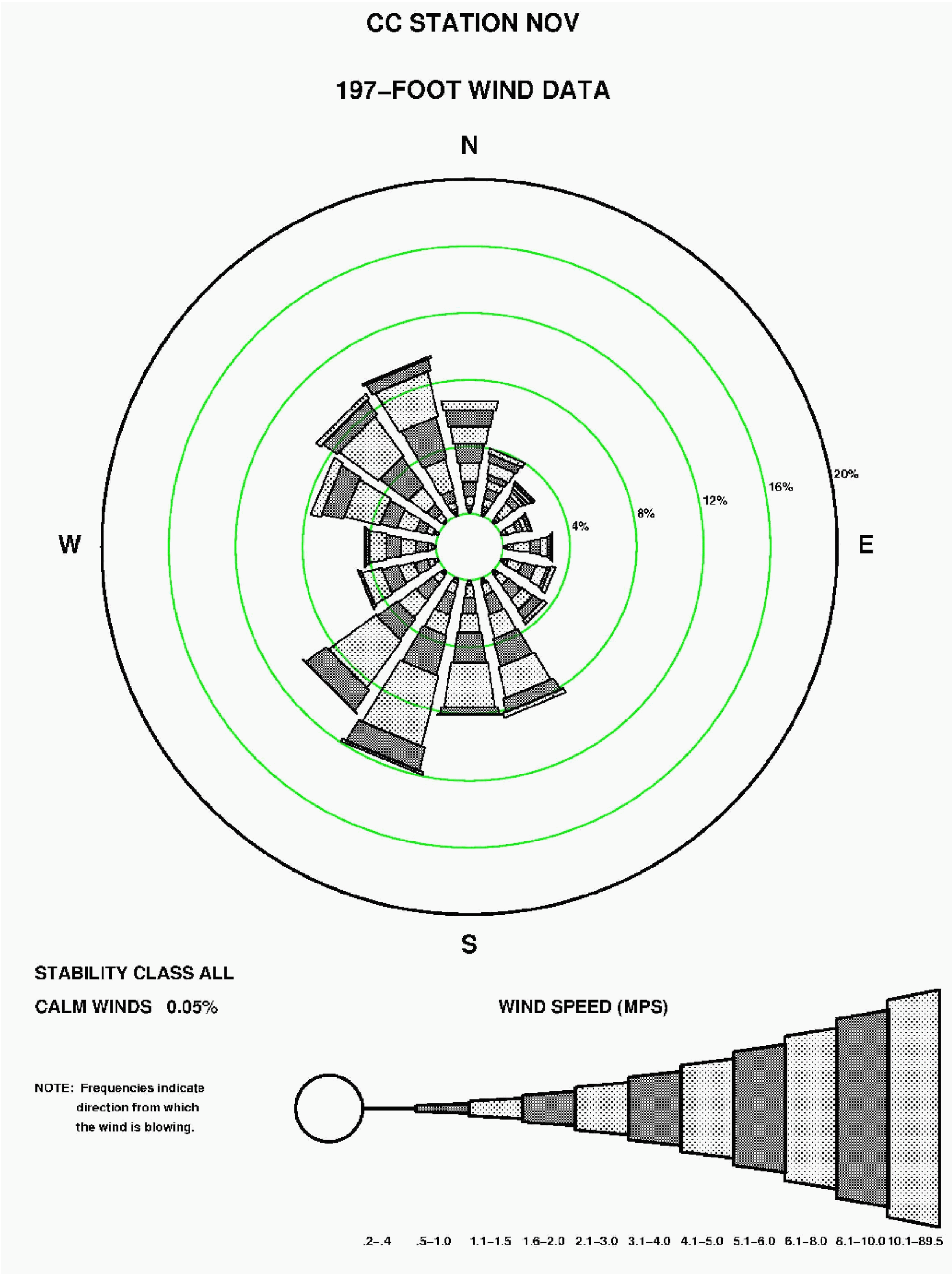


Figure 2.3-32 — {CCNPP 197' (60 m) December Wind Rose (2000-2005)}

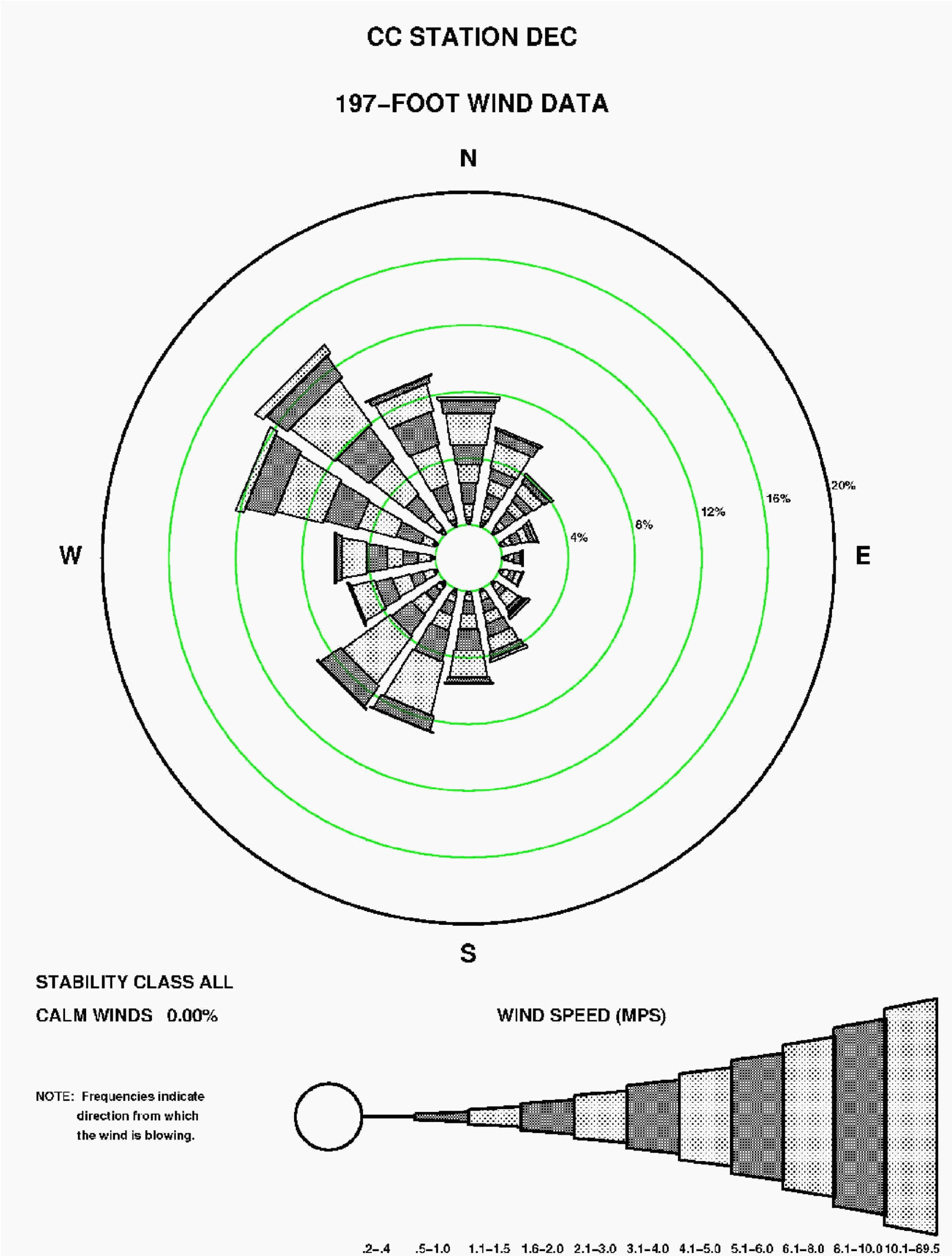
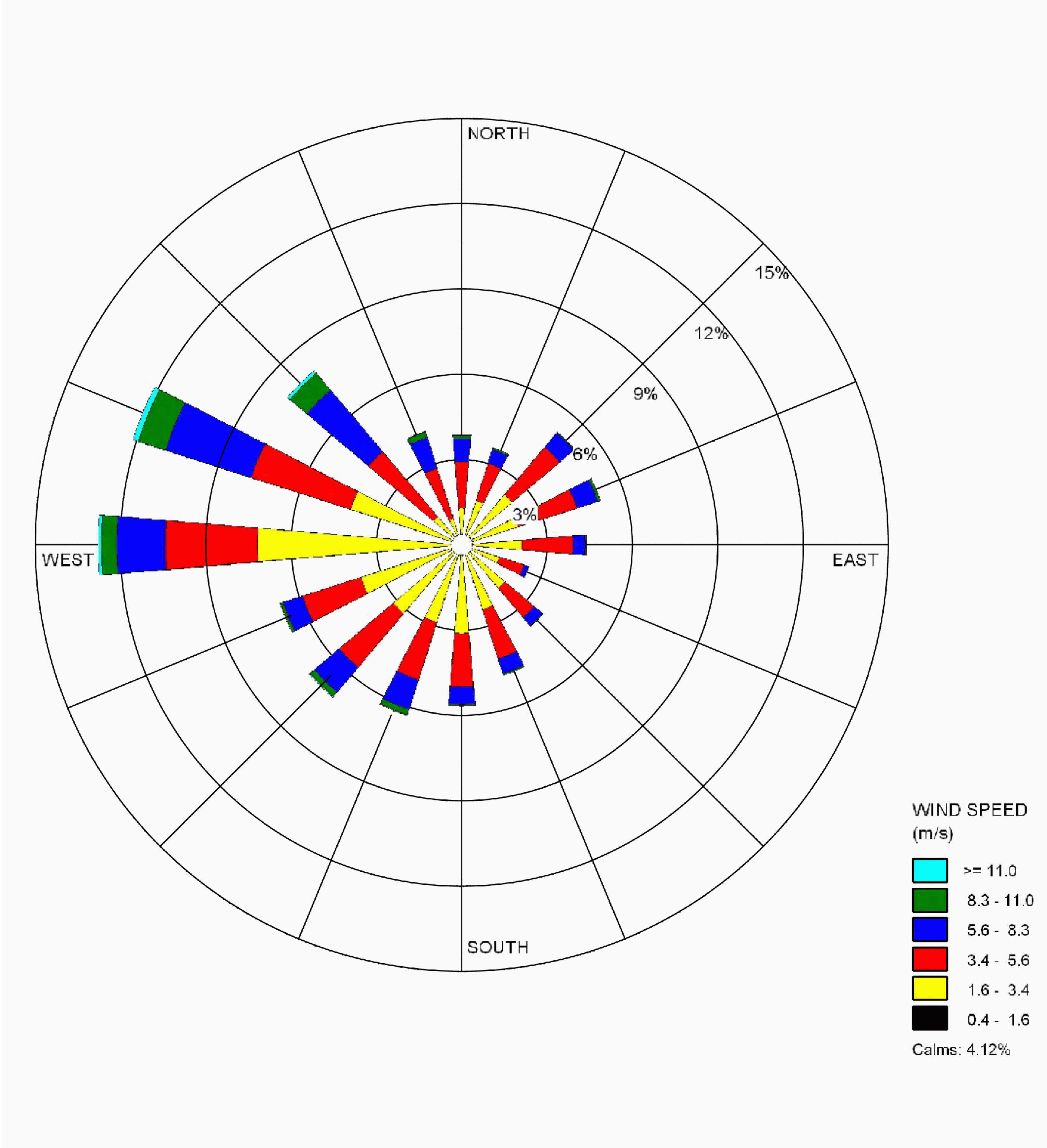


Figure 2.3-33 — {BWI Annual Wind Rose}

WIND ROSE PLOT:
Station #93721
BALTIMORE/BLT-WASHINGTON INT'L, MD

DISPLAY:
Wind Speed Direction
(blowing from)



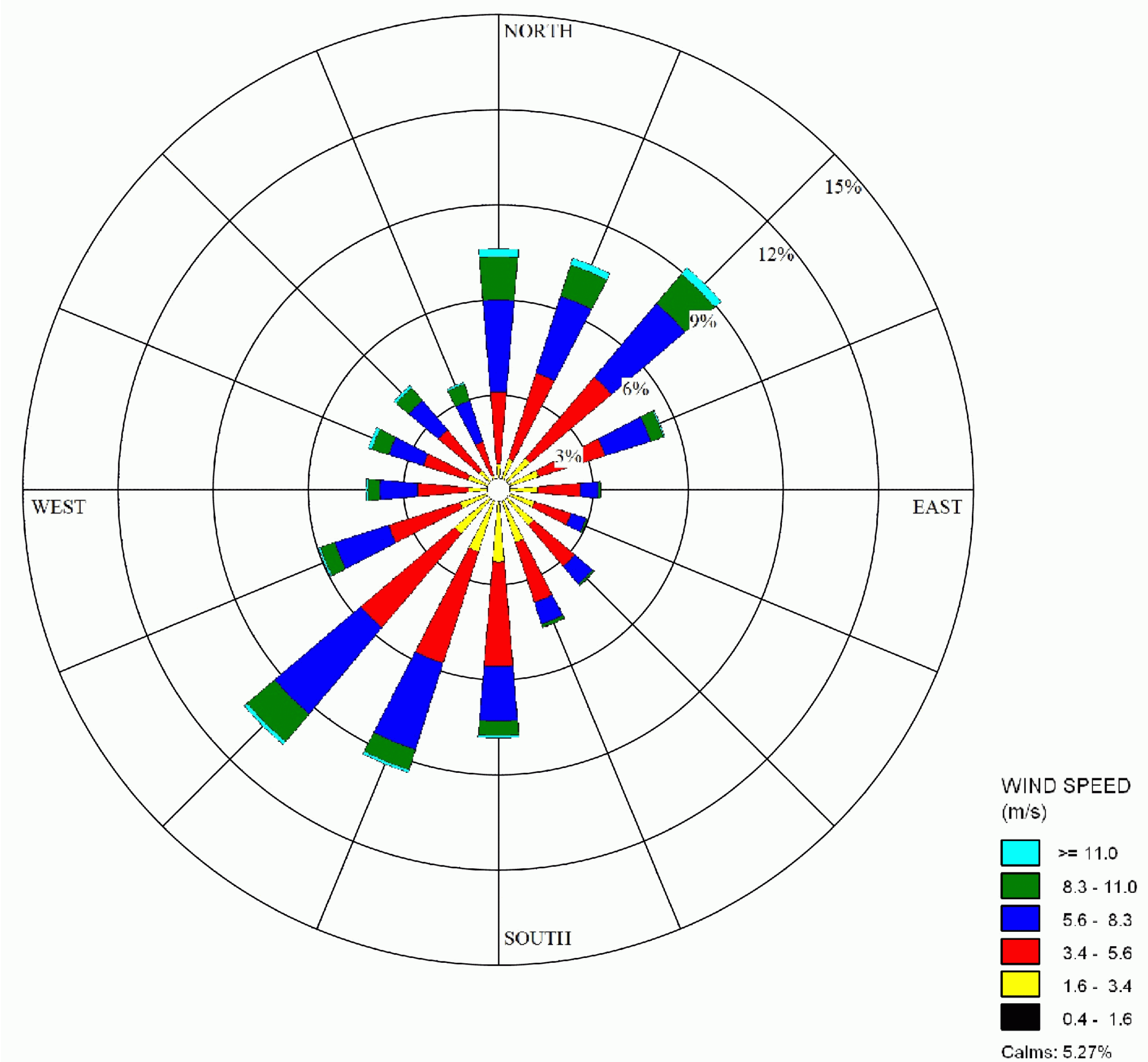
DATA PERIOD:
1984,1985,1986,1987,1988,1990,1991,1992
Jan 1 - Dec 31 (00:00-23:00)

CALM WINDS:	AVG. WIND SPEED:
4.12 %	3.92 m/s
TOTAL COUNT:	DATE:
70152 hrs	1/3/2007

Figure 2.3-34 — {Norfolk Annual Wind Rose}

WIND ROSE PLOT:
Station #13737
NORFOLK INT'L AIRPORT, VA

DISPLAY:
Wind Speed Direction (blowing from)



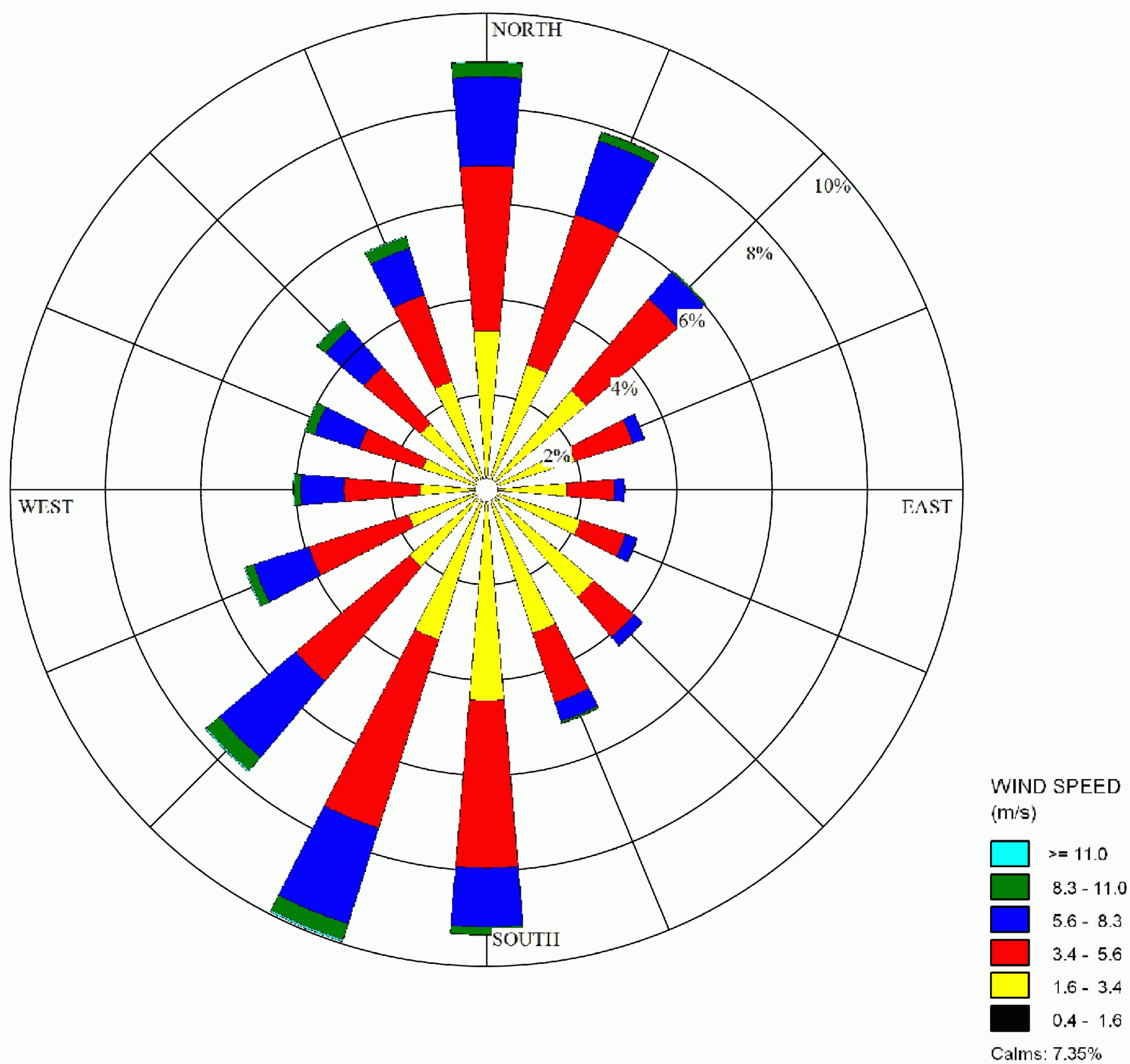
DATA PERIOD:
1984,1985,1986,1987,1988,1989,1990,1991,1992
Jan 1 - Dec 31 (00:00-23:00)

CALM WINDS:	AVG. WIND SPEED:
5.27 %	4.92 m/s
TOTAL COUNT:	DATE:
78912 hrs	11/30/2006

Figure 2.3-35 — {Richmond Annual Wind Rose}

WIND ROSE PLOT:
Station #13740
RICHMOND/R E BYRD INT'L AIRPORT, VA

DISPLAY:
Wind Speed Direction (blowing from)



DATA PERIOD:
1984,1985,1986,1987,1988,1989,1990,1991,1992
Jan 1 - Dec 31 (00:00-23:00)

CALM WINDS:	AVG. WIND SPEED:
7.35 %	3.70 m/s
TOTAL COUNT:	DATE:
78912 hrs	11/30/2006

Figure 2.3-36 — {CCNPP 33' (10 m) Annual Precipitation Wind Rose (2000-2005)}

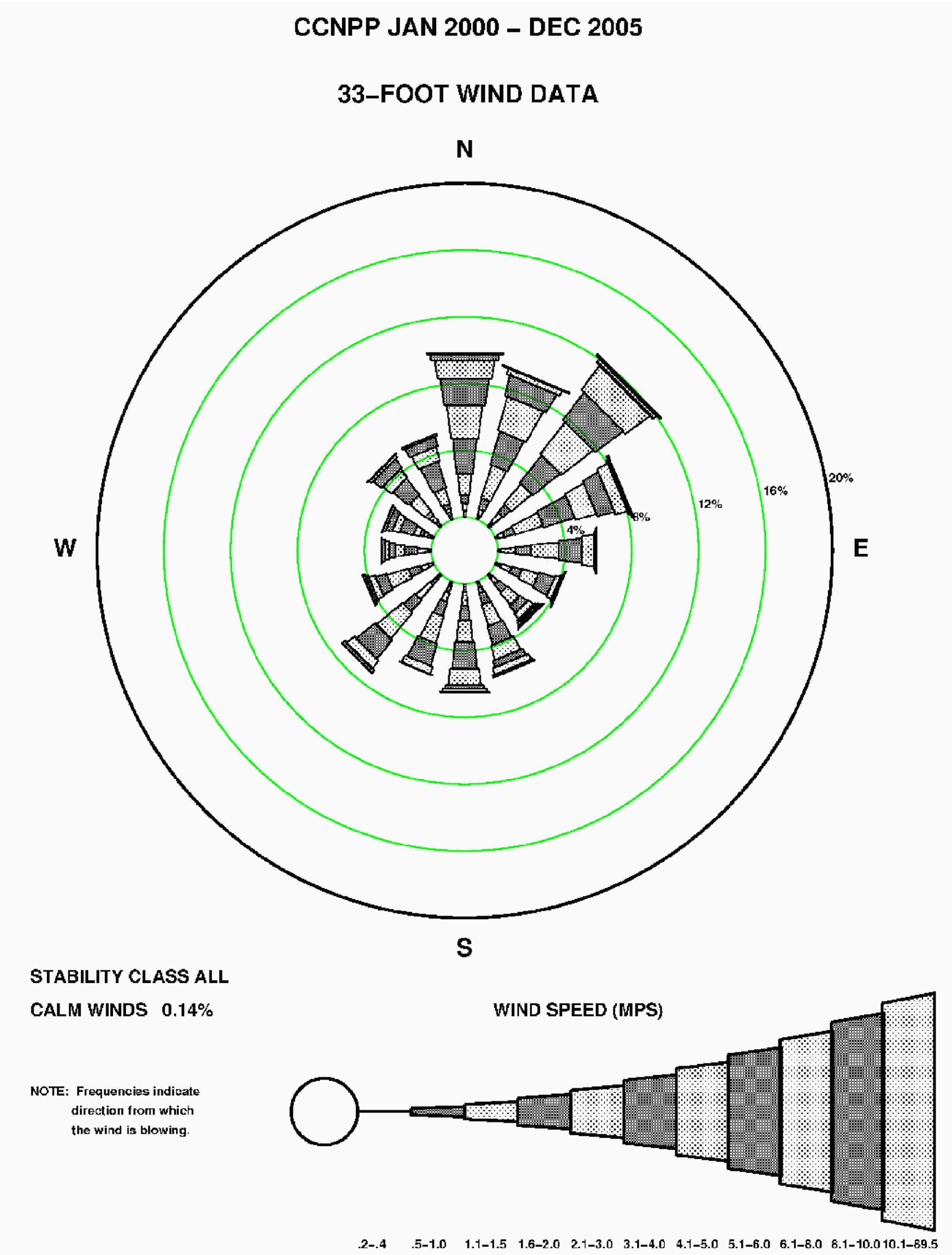


Figure 2.3-37 — {CCNPP 197' (60 m) Annual Precipitation Wind Rose (2000-2005)}

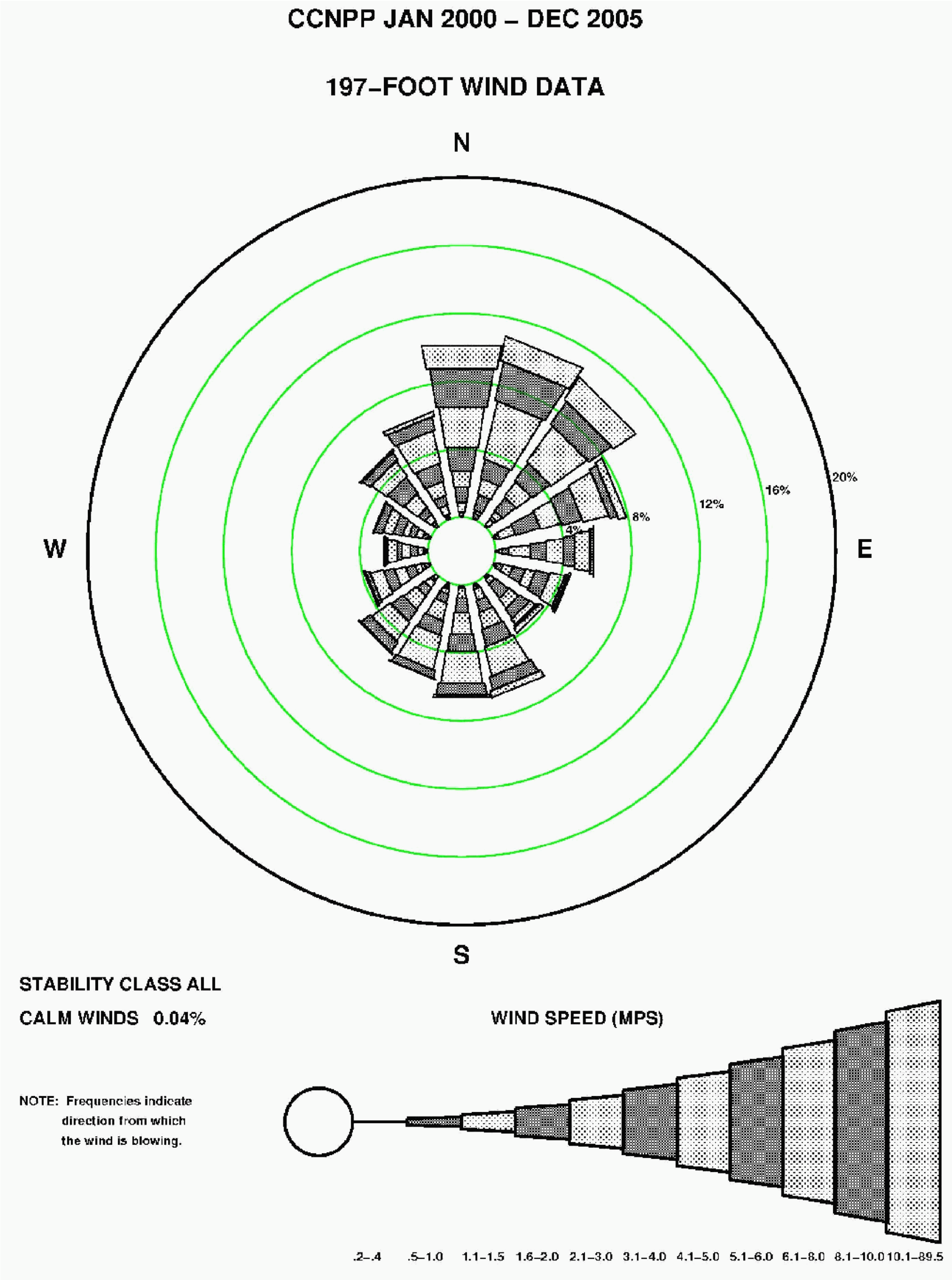


Figure 2.3-38 — {Monthly Average Mixing Heights}

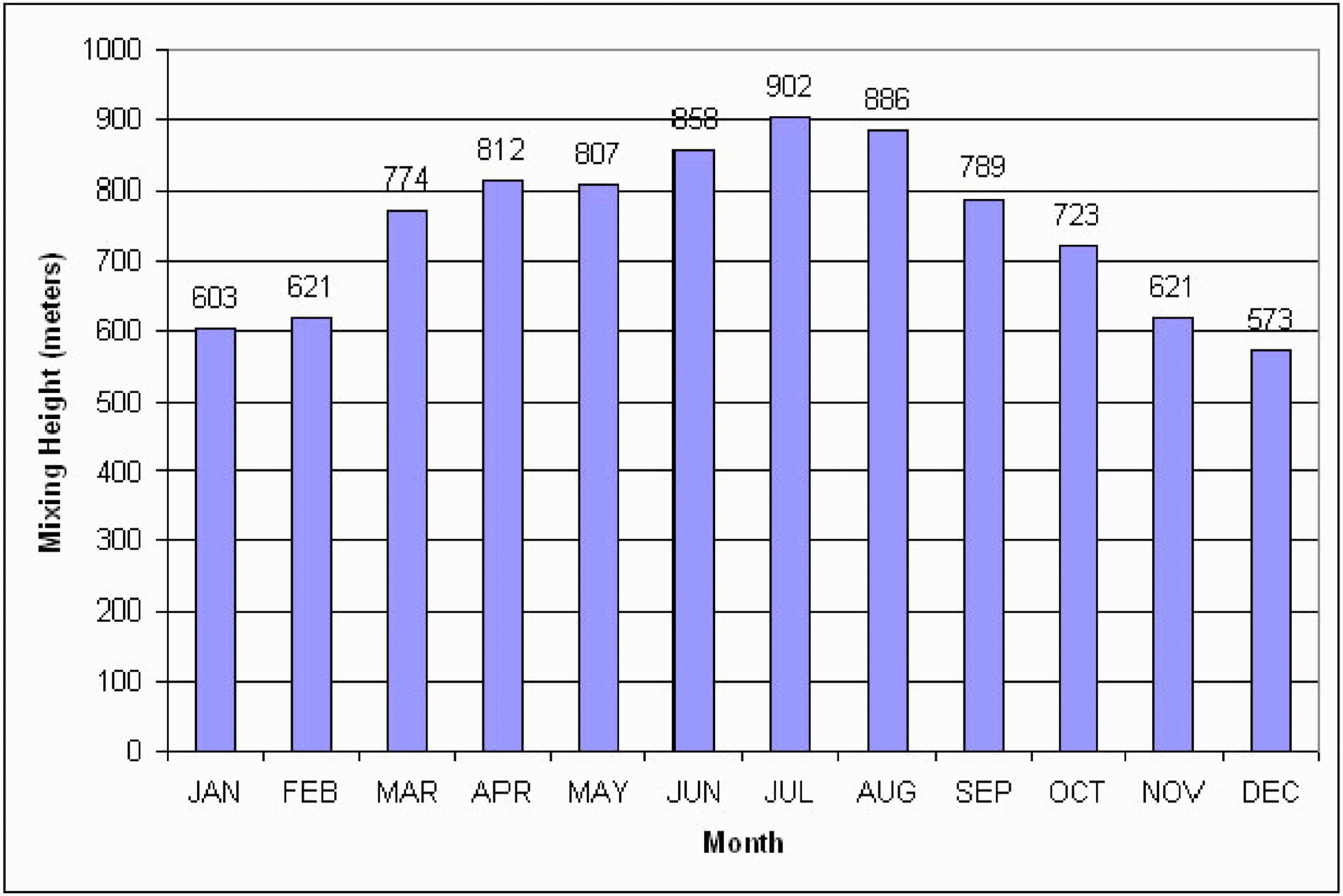


Figure 2.3-39 — {Topography Within a 1 Mile (1.6 km) Radius of the Site}

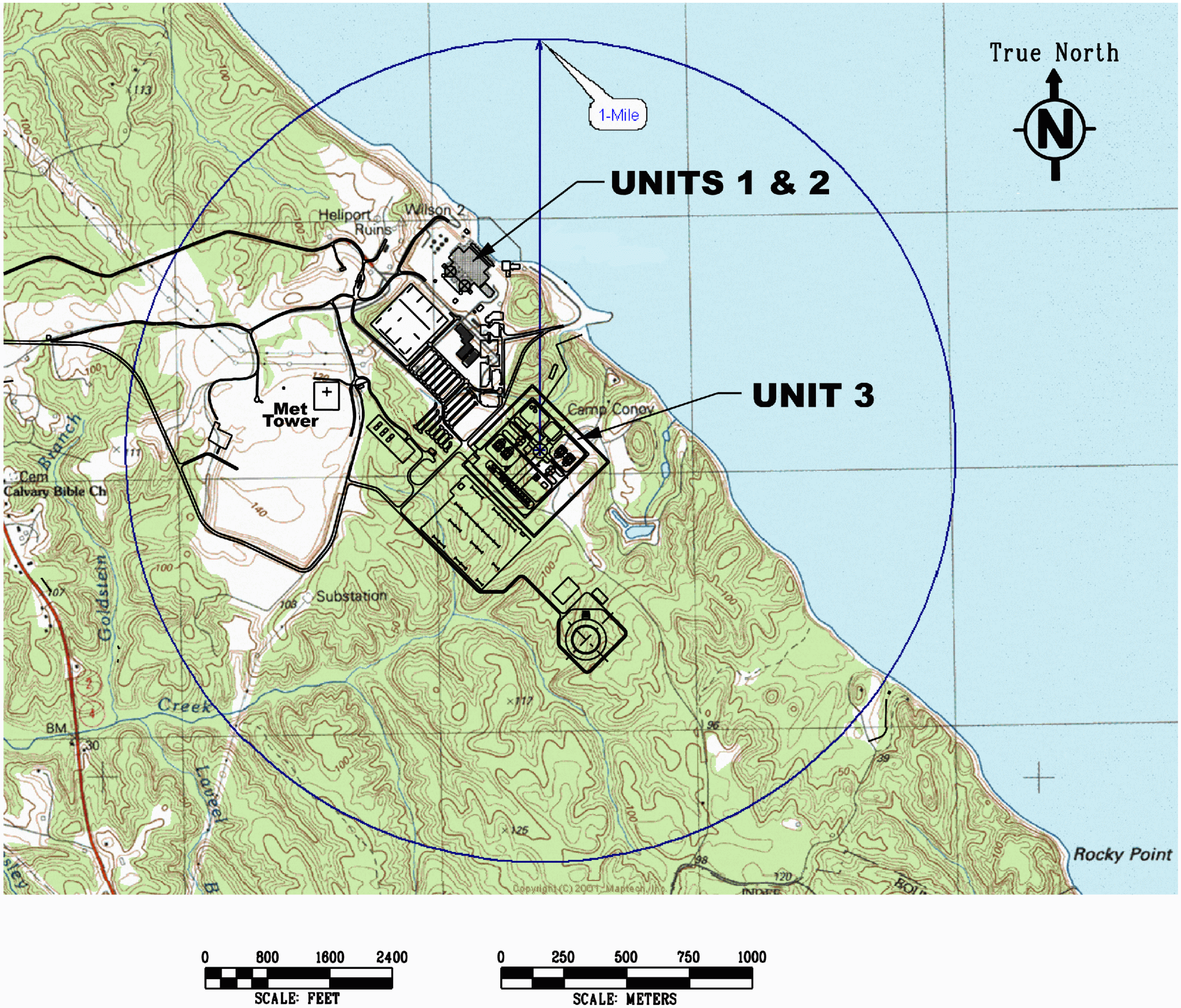


Figure 2.3-40 — {Topography Within a 5 Mile (8 km) Radius of the Site}

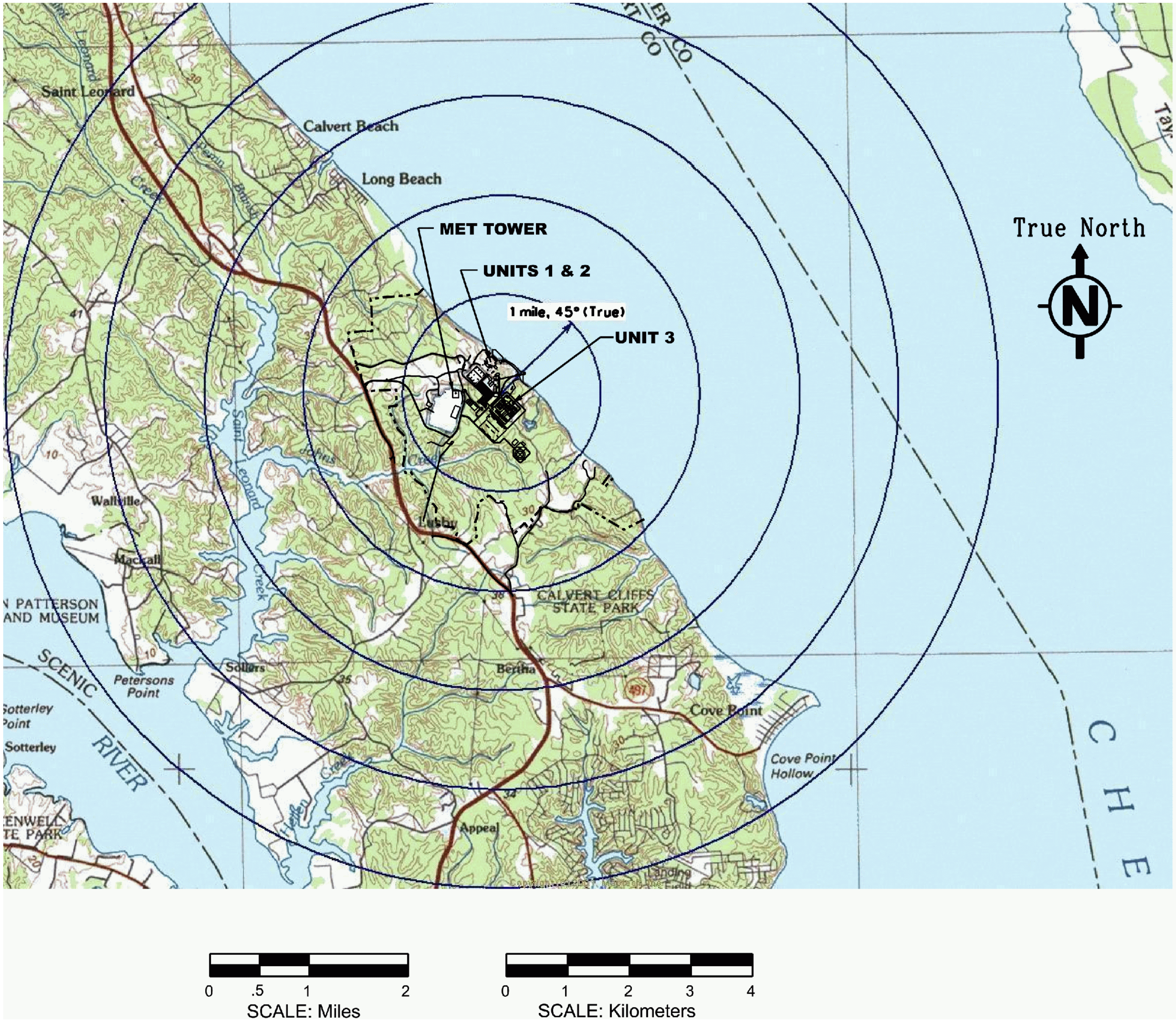


Figure 2.3-41 — {Topography Within a 50 Mile (80 km) Radius of the Site}

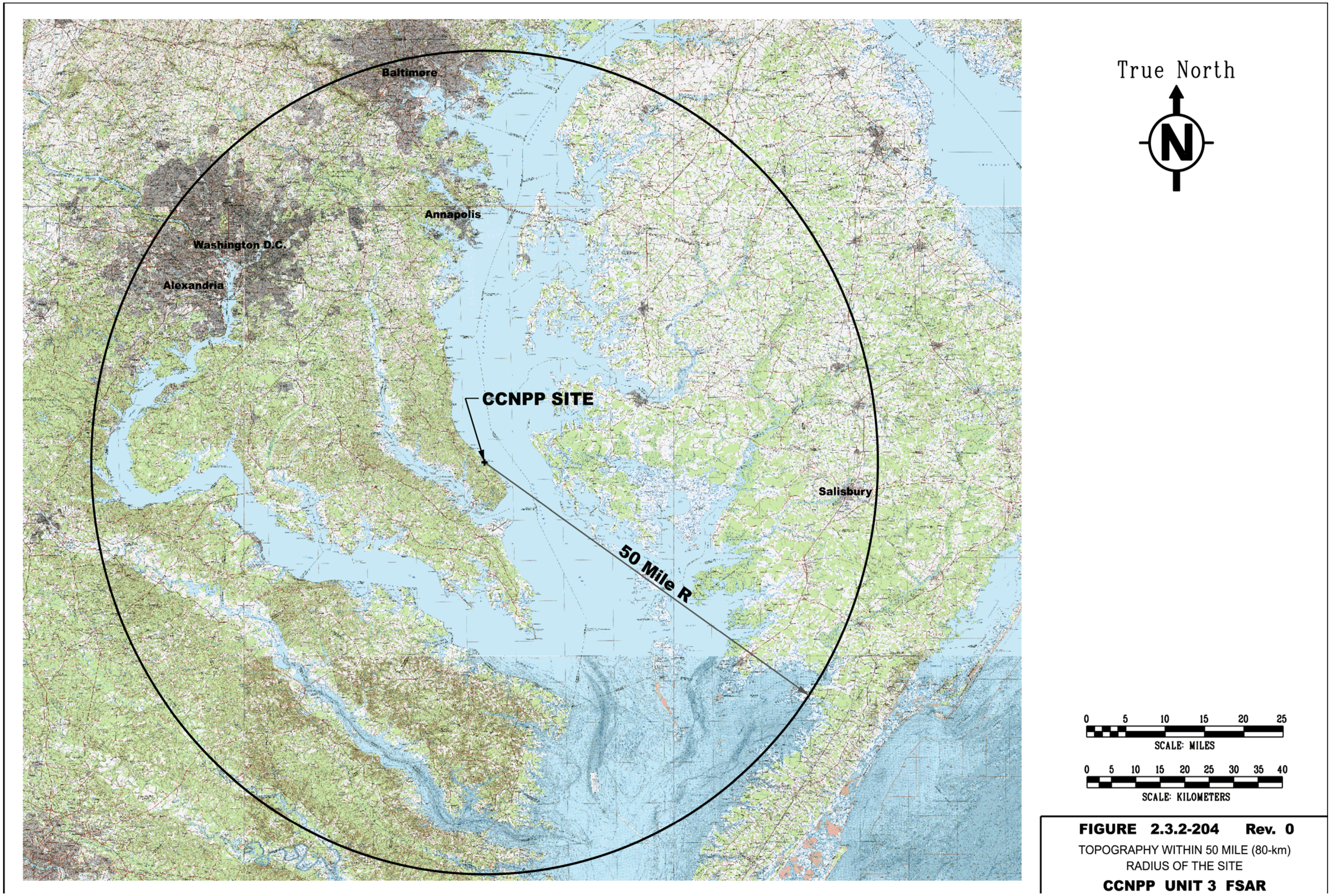
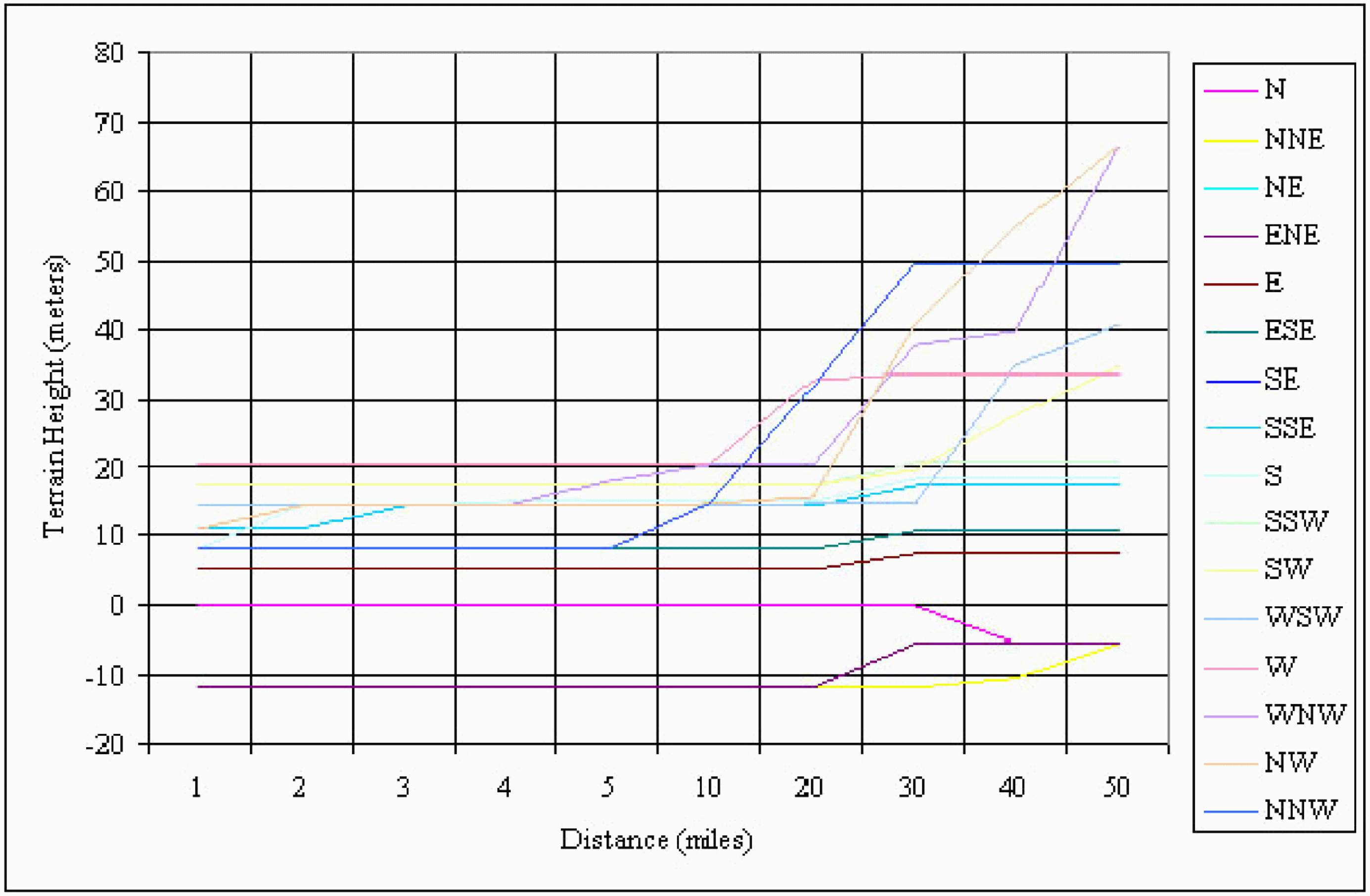


Figure 2.3-42 — {Maximum Terrain Heights 0-50 Mil2.3es Downwind of CCNPP Site by Compass Sector (*)}



(*) TERRAIN HEIGHTS ARE WITH RESPECT TO CCNPP UNIT 3 GRADE OF 83 FEET (25.3 METERS)

Figure 2.3-43 — {CCNPP Unit 3 Control Room Location}

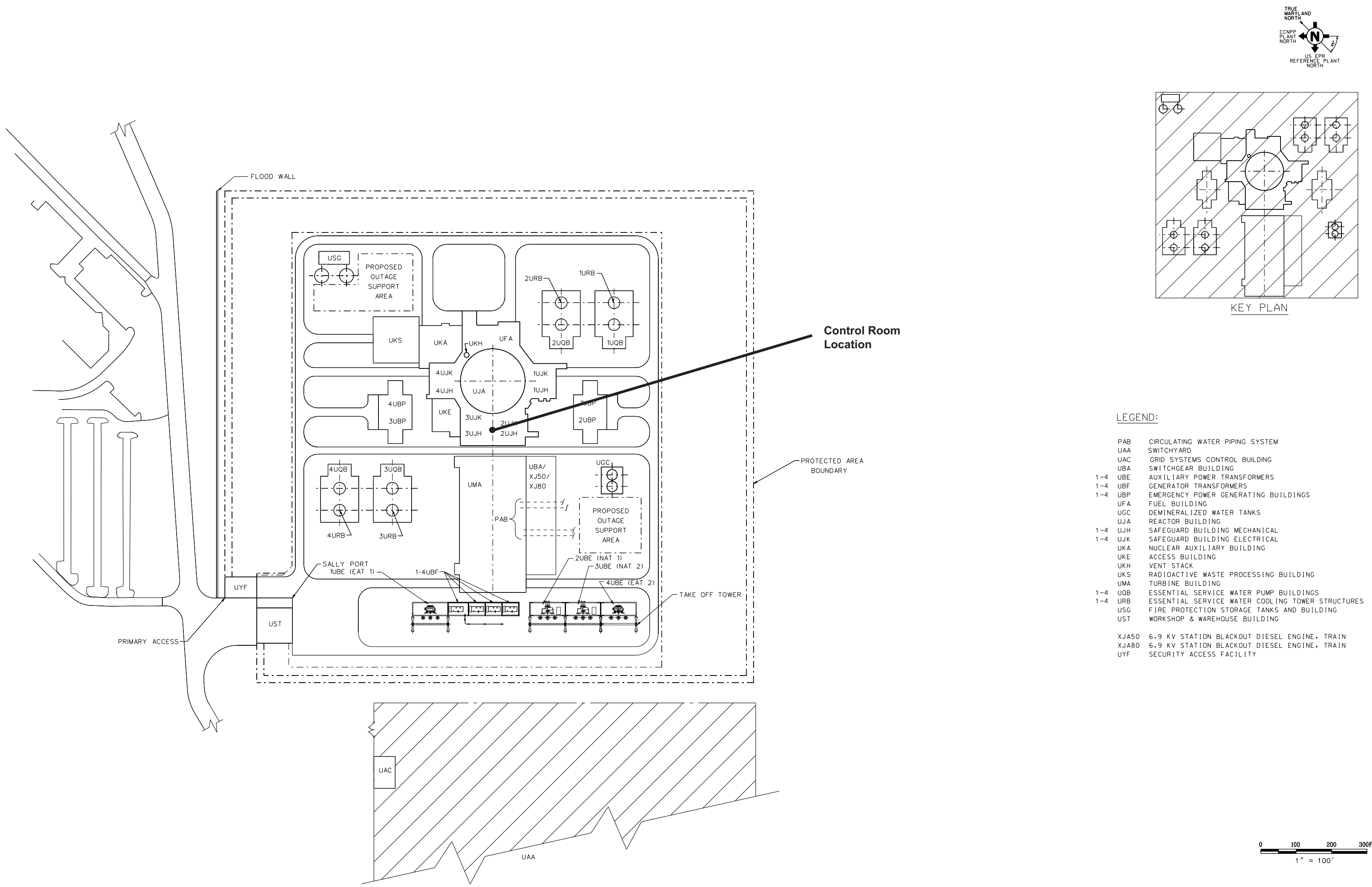


Figure 2.3-44 — {PMWP Values for CCNPP from HMR 53}

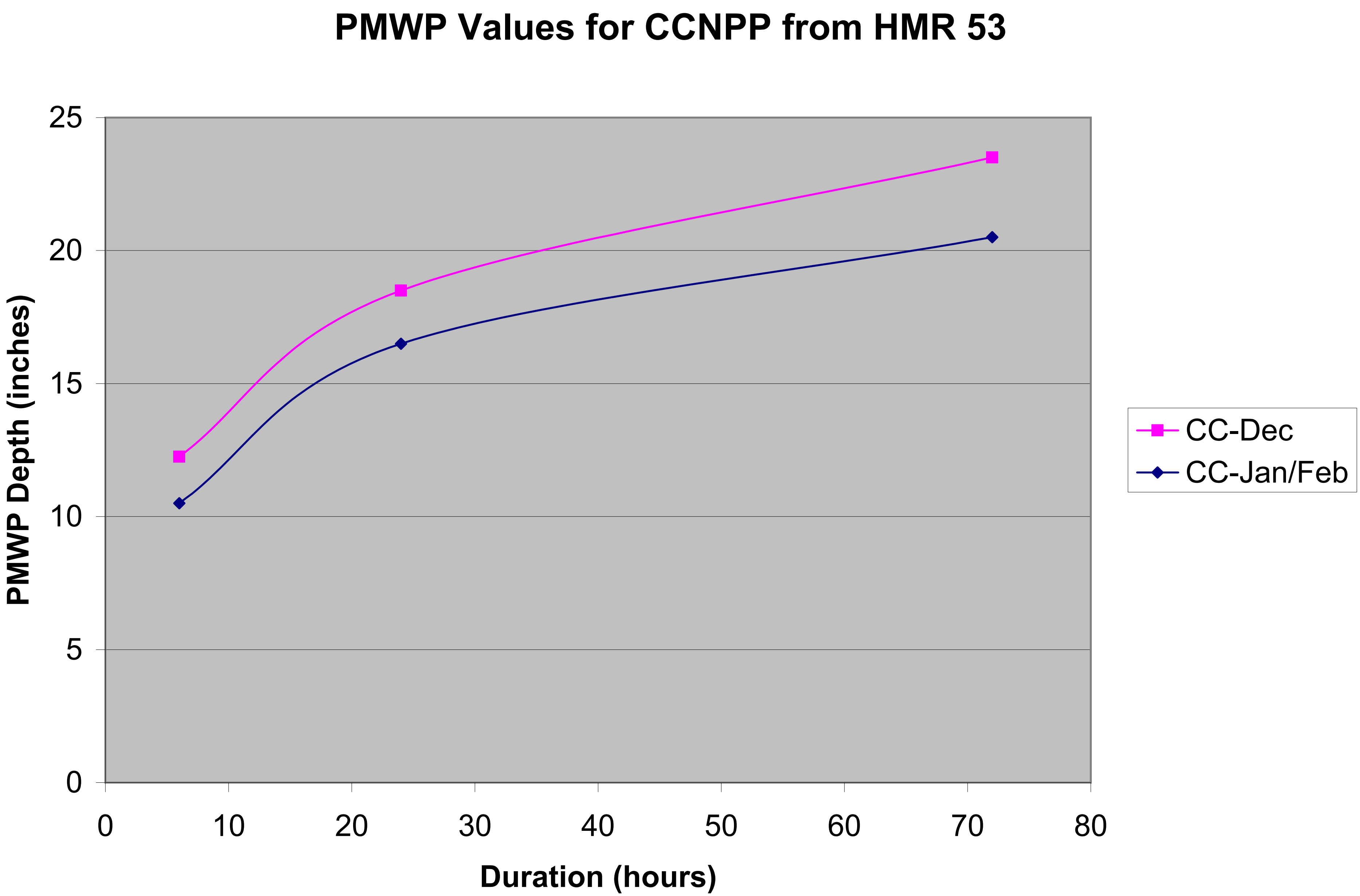
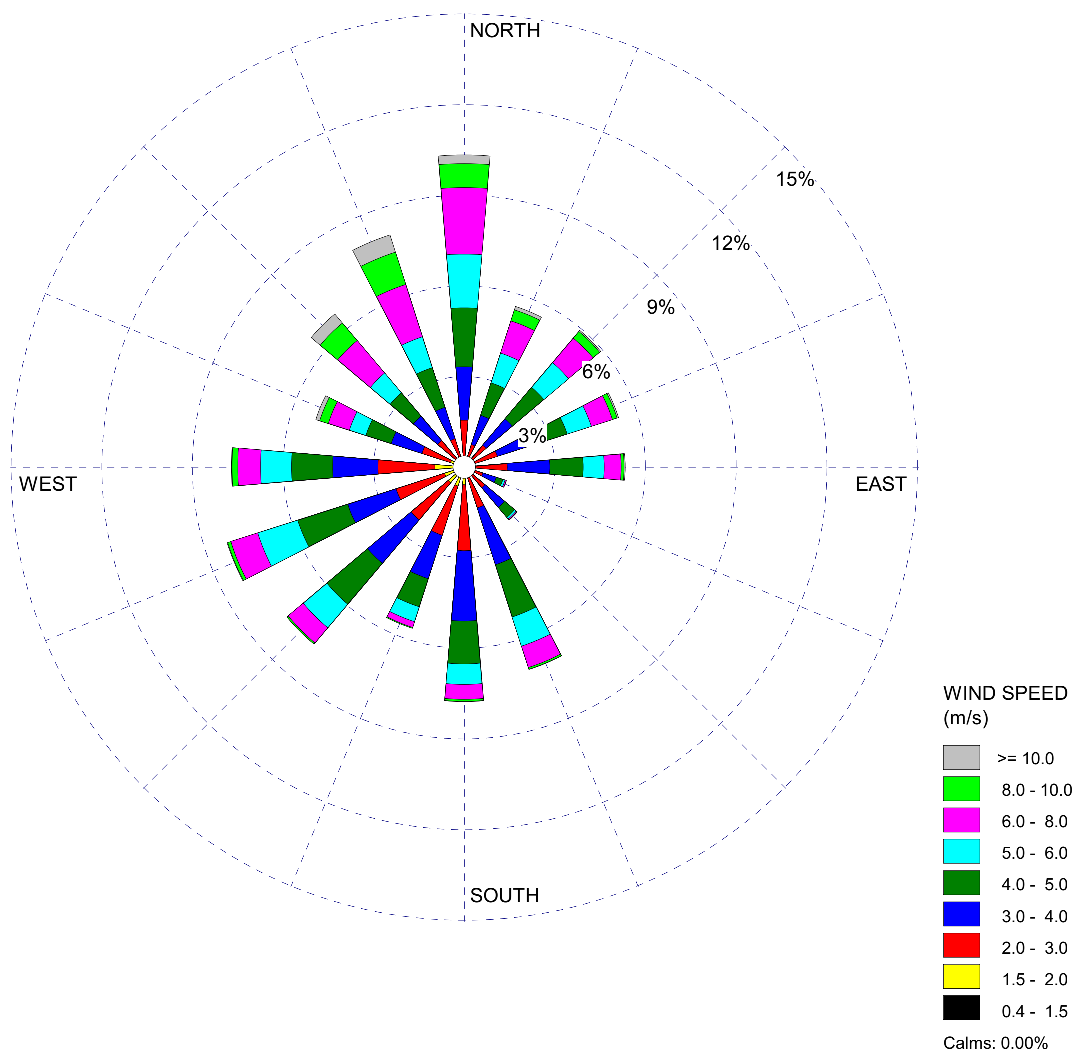


Figure 2.3-45 — {Patuxent River NAS Annual Wind Rose (2000 through 2005)}

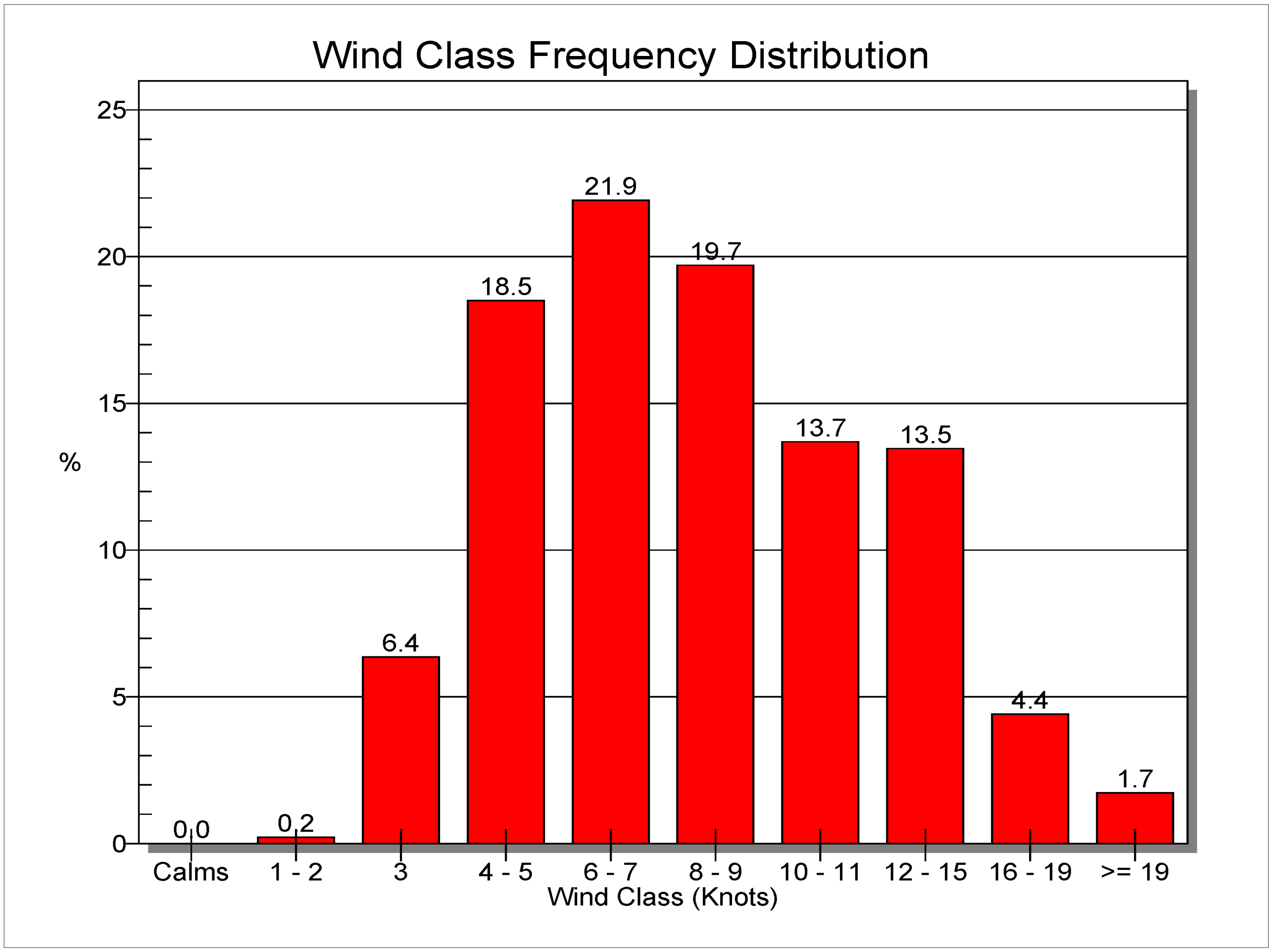
WIND ROSE PLOT:	DISPLAY:
Station #13721	**Wind Speed** **Direction (blowing from)**



DATA PERIOD:	COMPANY NAME:
2000 2001 2002 2003 2004 2005 **Jan 1 - Dec 31** **00:00 - 23:00**	**AREVA NP**
CALM WINDS: **0.00%**	TOTAL COUNT: **40292 hrs.**
AVG. WIND SPEED: **4.36 m/s**	DATE: **8/12/2008**

WRPLOT View - Lakes Environmental Software

Figure 2.3-46 — {Patuxent River NAS Wind Speed Class Frequency Distribution (2000 through 2006)}



WRPLOT View - Lakes Environmental Software