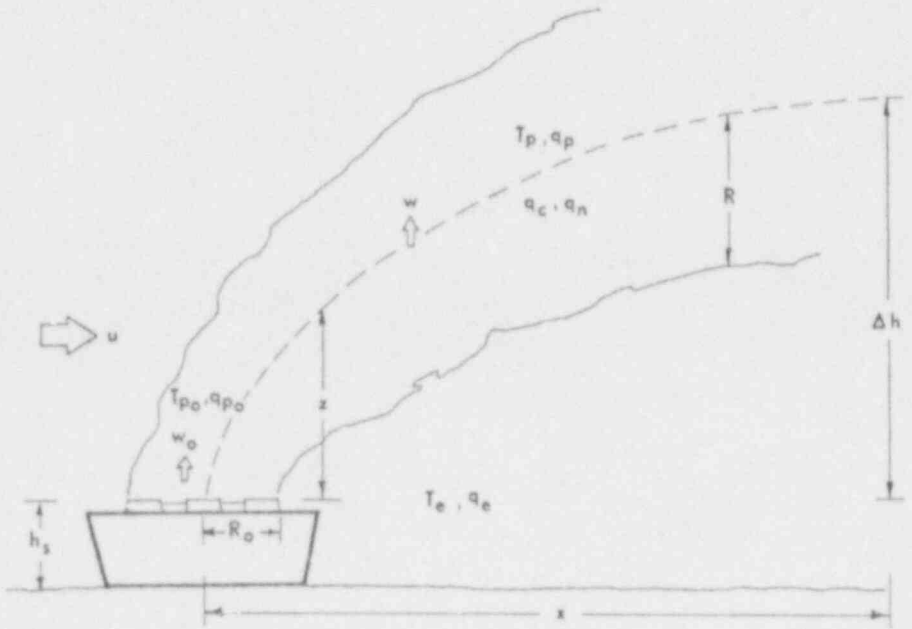
COOLING TOWER EFFECTS ON AREA FOG EVENTS

CATAWBA NUCLEAR STATION
CLOVER, SOUTH CAROLINA



APRIL 1988
DUKE POWER COMPANY

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF FIGURES (Cont'd)

1.0 INTRODUCTION

1.1 FOG STUDY SCOPE

The Catawba Fog Study is a requirement of the Catawba Nuclear Station Environmental Protection Plan (EPP) which is part of Appendix B of the Technical Specifications. Section 4.2.3 of the EPP describes the scope of the fog study which reads:

Monitoring of fog at selected locations shall be conducted for the period beginning with the startup and continued operation of Unit 1 and concluding one year after startup and continued operation of Unit 2. Visiometer and surface water temperature measurements shall be conducted at the following two locations: Location 1, about 800m north of the cooling towers; and Location 2, about 250m south of the cooling towers. These locations should coincide with the locations for visiometer measurements during the preoperational fog monitoring program conducted during the period August 10, 1977-August 9, 1979. In addition to the visiometer measurements at the locations described above, daily fog observations shall be conducted by security or other trained personnel near visiometer location 2 and by trained personnel at the Wylie Hydro Station (located about 5 km east-southeast of the nuclear power station) as during the preoperational monitoring program. Using the criteria developed for the preoperational monitoring program, when atmospheric conditions are conducive to the formation of steam fog, meteorologists or other trained personnel shall conduct qualitative observations of the horizontal and vertical extent of the fog, as well as transport of the fog off the lake. A monitoring program consisting of visiometer measurements or qualitative observations shall be conducted at the residential community located about 1.6 km east of the nuclear power station on the eastern shore of Lake Wylie and at the municipal airport located about 8 km south of the nuclear power station and about 3 km south of Lake Wylie. At the conclusion of the monitoring period (one year after the startup and continued operation of Unit 2), a report shall be submitted as part of the Annual Environmental Operating Report (discussed in Section 5.4.1 of this EPP) containing the following information:

- a complete description of the operational fog monitoring program, noting similarities and differences between this program and the preoperational program;
- quantitative and qualitative monitoring results;
- interpretive analyses of the frequency and intensity of ground fog induced by plant operation, particularly at the nearby residential community and municipal airport described above, using comparisons of the results of the preoperational and operational monitoring programs; and

- a discussion of the need for continued monitoring and/or mitigating actions to lessen the atmospheric impact of plant operation.

1.2 DESCRIPTION OF COOLING TOWER OPERATION

The cooling water that collects heat from the condensers at the Catawba Nuclear Station is circulated through six circular, mechanical draft cooling towers and then recirculated back to the condensers. A small percentage of water (tower blowdown and low pressure service water) is discharged back into Lake Wylie. The towers are arranged on-site as shown in Figure 1-2.

Each tower is 92 feet tall, 272 feet in diameter and has 13 fans. The fans are each 28 feet in diameter and rotate at a speed of 154 rpm. When all six towers are operating, a total of 1.38 million gallons of water per minute are flowing through the system. Water enters the towers at a maximum temperature of 112°F and is recirculated at 88°F. All 78 fans can produce enough draft to move 1.3 million pounds of air per minute. Air exits each operating fan port saturated with moisture. Up to 27,700 gallons per minute of water is evaporated and released through the fan ports at maximum operating capacity. Water is constantly drawn into the system from Lake Wylie to replace the water lost through evaporation. The entire system is capable of handling a total heat load of 15.8 Billion Btus per hour.

During the winter months when ambient air temperatures are sufficiently cold, the operation of all the towers may not be required to return the cooling water to proper temperature. Therefore, air and water temperatures are monitored constantly and one or more towers may be removed from service for a period of time.

Each reactor at Catawba will operate for about one year before it must be refueled. The refueling process lasts about two months. The operating and refueling cycles of each reactor are coordinated such that the two units are not down simultaneously. Therefore, one reactor is operating while the other is being refueled. During several months of each year, one of the two units will be down which means that three of the cooling towers will not be operating during that time period. Towers not operating are completely drained to facilitate regular maintenance procedures.

1.3 COOLING TOWER PLUME EFFECTS ON THE ATMOSPHERE

The study is designed to address the frequency and intensity of ground-level fog/icing associated with plant operation from the standpoints of: increased surface water temperatures from plant discharges; increased atmospheric moisture from vapor due to cooling tower plume downwash, plume dispersion, or drift evaporation; and increased fog condensation nuclei from cooling tower drift. Increased lake surface water temperatures exacerbate the occurrence of steam fog. Increased atmospheric moisture and/or condensation nuclei worsen the occurrence of radiation and frontal fog. Increased heat loading of the immediate area can lessen the occurrence of radiation and frontal fog.

1.4 STUDY DESCRIPTION

The fog study is divided into a pre-operational phase and an operational phase. The pre-operational phase consists of two years of visibility observations and visiometer data gathered from August 1977 through August 1979. Visibility and surface water temperature readings were taken at two locations (Figure 1-2).

Site 1 is near the water intake area, about 800 meters north of the cooling towers. Site 2, about 500 meters south of the cooling towers, is near the low pressure service water discharge area of the plant. Visibility was continuously measured at each location using an MRI Fog Visometer Model 1580A. This instrument measures visibility within the range of 50 feet to 6 miles with a minimum accuracy of ±15% in light scattering coefficient in normal atmospheric haze, fog and precipitation.

Surface water temperatures on Lake Wylie were continuously monitored near each visiometer using a thermistor at a depth of 5 to 8 cm shaded under a buoy. Temperature readings have an accuracy of ±0.5 degrees Celsius. Both visiometer data and surface water temperatures were averaged over one-hour intervals. Averaged measurements for the 30 minutes before and after each hour were logged on the hour.

To supplement these instruments, daily morning fog observations (between 6:00 and 7:30 a.m.) were taken during the same two-year pre-operational period. Security personnel at the nuclear station made visual observations to compare fog conditions near the south side (Site 2) visiometer to prevailing conditions on adjacent land and water. Personnel at the Wylie Hydro Station (located about 6 kilometers east-southeast of Catawba, downriver) made similar visibility observations over the lake and land areas visible from the dam. Sample copies of the fog observation forms filled out by Wylie Hydro and Catawba security personnel are shown in Figures 1-3 and 1-5, respectively. The corresponding fog observation guides are given in Figures 1-4 and 1-6, respectively. Pictures were normally attached to the guides for reference.

Duke Power meteorologists also personally witnessed steam fog episodes during the pre-operational phase to define the extent of fog, transport of fog off the lake, and elevation of the base of the fog. The details and analysis of the meteorologists' observations are contained in Section 2.2.

The operational phase of the study, also two years of data collection, used basically the same visual and mechanical monitoring procedures outlined above with one addition. Catawba security personnel, in addition to each daily morning fog observation, completed a cooling tower plume questionnaire. The questionnaire was designed to document the characteristics of the cooling tower plume itself in terms of plume dimensions, visibility, drift, and icing on surrounding public and private lands. The visual fog observations at both locations along with the plume observations were started in September 1984 in anticipation of the start-up of Catawba Unit 1. Unit 1 began testing procedures in the early months of 1985, and went into commercial operation in June 1985. The visiometer and surface water temperature measurements started in August 1985. Unit 2 at Catawba began commercial operation in August 1986. Mechanical problems and scheduled refueling caused both units to be down from September to November of 1986. To ensure at least one full year of continuous operation of both units, the visiometer monitoring programs and visual observations were continued through the end of 1987. The statistical analysis of the visiometers, thermistors and visual observations includes only the data collected while the plant was operating, June 1985 through August 1986 and November 23, 1986 through November 1987.

The plume questionnaires were analyzed from January 1985, when the plant started testing procedures, through December 1987. The questionnaires were not normally filled out if there was no cooling tower plume.

The operational fog observation forms and guides are very similar to those used in the pre-operational phase. Space was allotted for a brief comment on the cooling tower plume and several observation points were changed slightly. For this reason, sample copies of the operational phase fog observation forms and guides are also shown in Figures 1-7, 1-8, 1-9 and 1-10. The cooling tower plume questionnaire is included as Figure 1-11.

Duke Power meteorologists also observed fogging events during the operational phase of the study. Their findings are reported in Section 2.2.

A mathematical model (SACTI) for the prediction of seasonal/annual cooling tower impact was run simulating full operation under two years of representative meteorological data. The model results are compared to the other methods used in the study in Section 5.0.

Charts illustrating the timetable of events for both phases of the study are shown in Figures 1-12 and 1-13.

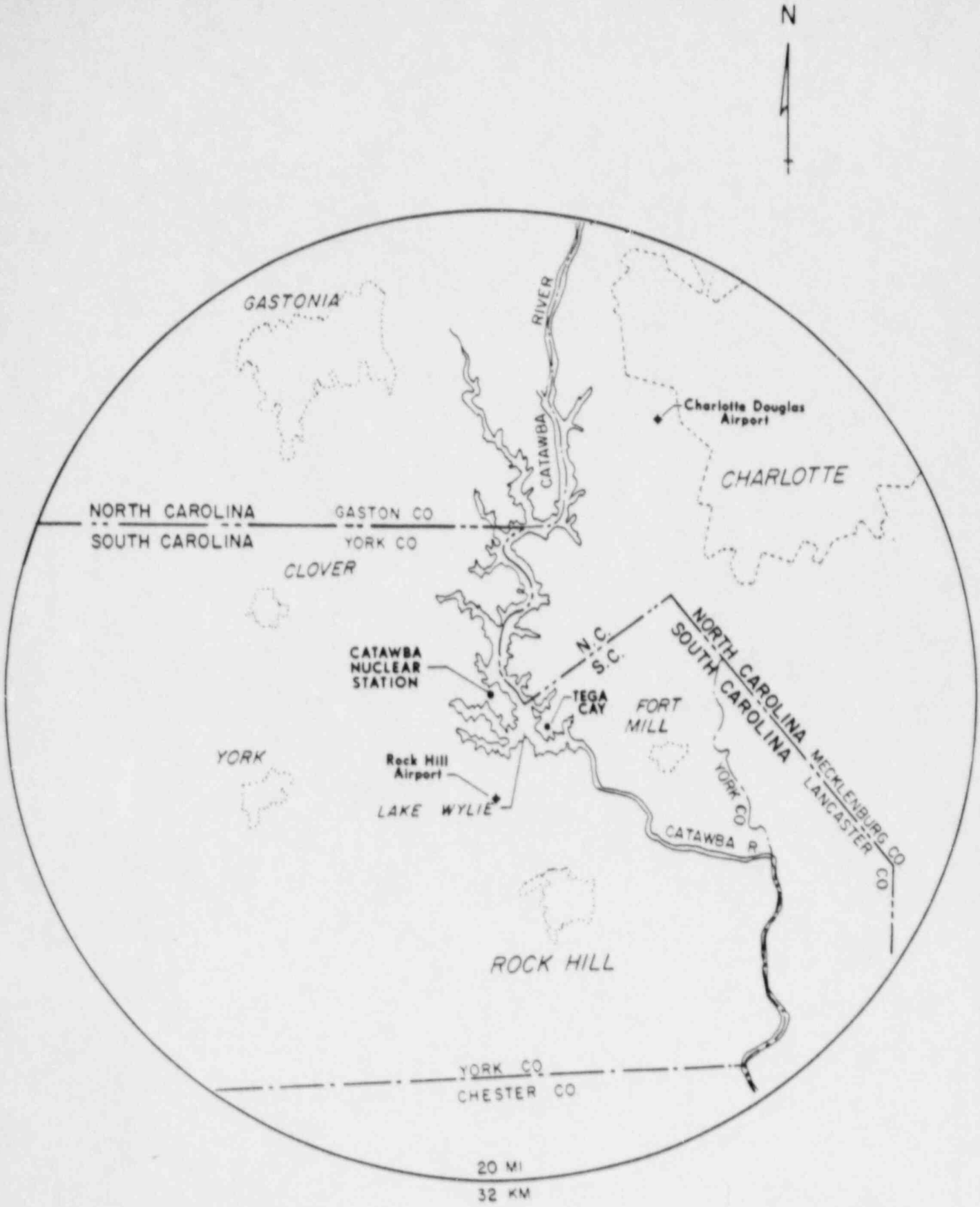

Figure 1-1
Plant Location

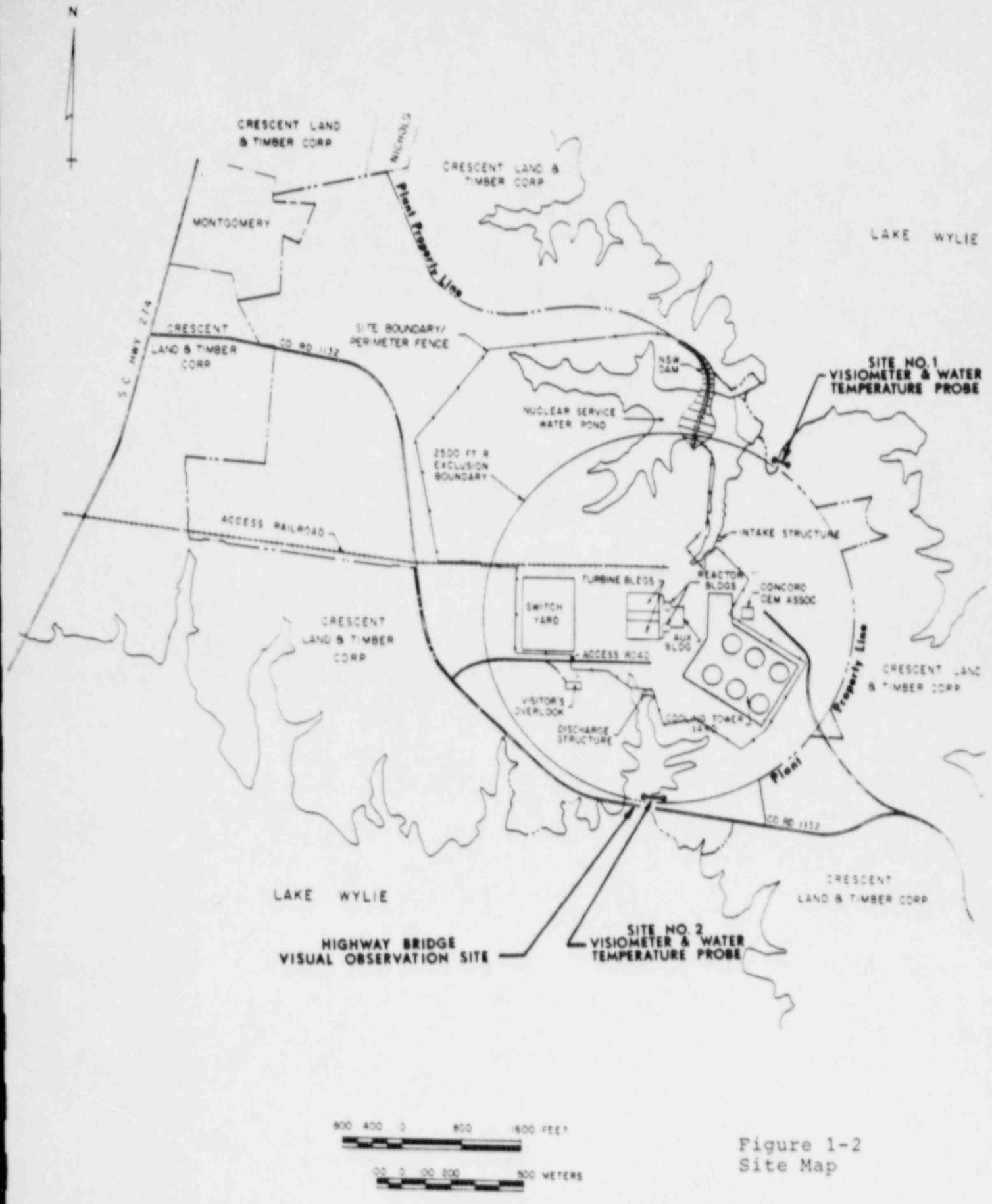

Figure 1-2
Site Map

NUCLEAR STATION

FOG OBSERVATION FORM – PRE-OPERATIONAL

MONTH _____ YEAR _____

SITE: WYLIE HYDRO

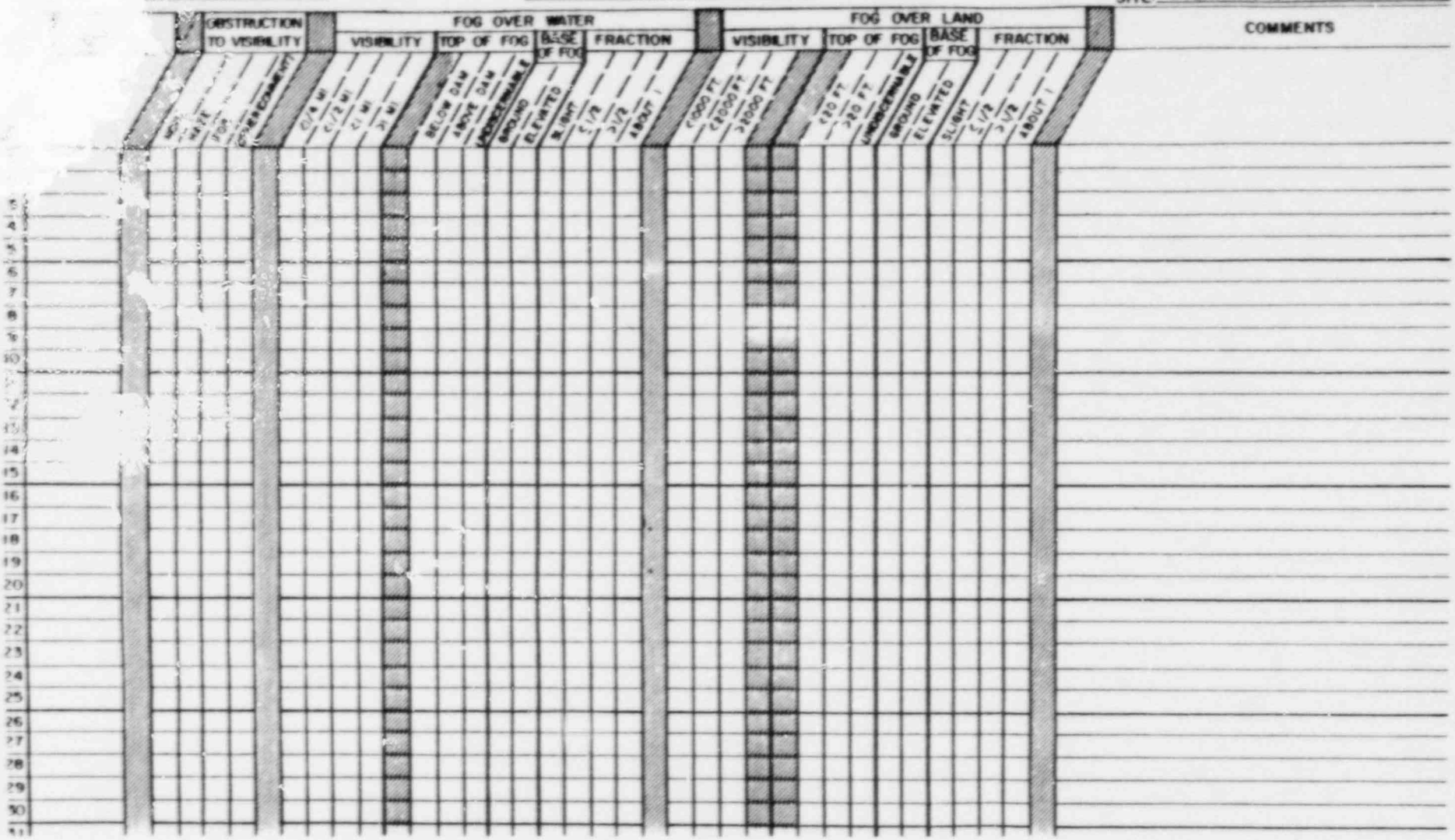

Figure 1-3

FOG OBSERVATION GUIDE

PRE-OPERATIONAL

WYLIE HYDRO

OVER WATER		
POINT No.	DISTANCE	DESCRIPTION
1	.25 Mi.	Boat House
2	.5 Mi.	House With Saddle Shaped Roof
3	1.0 Mi.	House With White Roof

OVER LAND		
POINT No.	DISTANCE	DESCRIPTION
4	1000 ft.	Road Intersection
5	2000 ft.	Transmission Tower

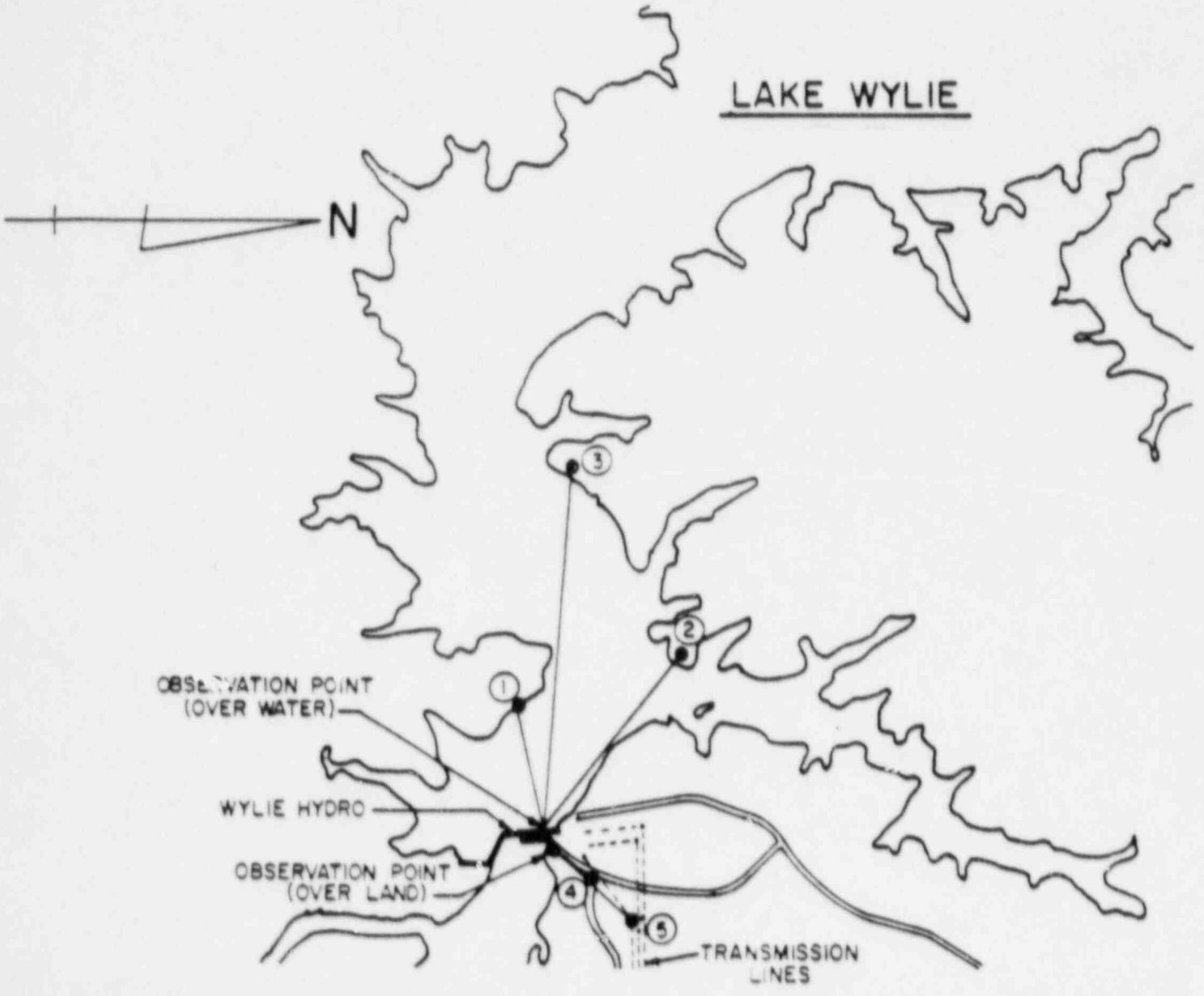

Figure 1-4

CATAWBA NUCLEAR STATION

FOG OBSERVATION FORM – PRE-OPERATIONAL

MONTH _____ YEAR _____

SITE: HIGHWAY BRIDGE (Co. Rd. 1132)

	DATE & TIME	OBSTRUCTION TO VISIBILITY				FOG OVER WATER				FOG OVER LAND				COMMENTS
		NONE	HAZE	FOG	PRECIPITATION	VISIBILITY	TOP OF FOG	BASE OF FOG	FRACTION	VISIBILITY	TOP OF FOG	BASE OF FOG	FRACTION	
						<1/4 MI 1/4-1/2 MI 1-2 MI >2 MI	<20 FT BELOW GROUND ABOVE GROUND INDISCERNIBLE	GROUND ELEVATED	SLIGHT <1/4 1/4-1/2 ABOUT 1	<1000 FT 1/4-1/2 MI >1/2 MI	<20 FT >20 FT INDISCERNIBLE	GROUND ELEVATED	SLIGHT <1/4 1/4-1/2 ABOUT 1	
1														
2														
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														
13														
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25														
26														
27														
28														
29														
30														

Figure 1-5

FOG OBSERVATION GUIDE

PRE-OPERATIONAL

HIGHWAY BRIDGE (Co. Rd. 1132)

OVER WATER		
POINT No.	DISTANCE	DESCRIPTION
1	.25 Mi.	House With Screened Porch
2	.5 Mi.	White Boat House at End of Pier
3	1.0 Mi.	Transmission Tower at End of Point
4	1.5 Mi.	Open Field at Shore Line

OVER LAND		
POINT No.	DISTANCE	DESCRIPTION
5	1000 ft.	Trash Barrel in Parking Lot
6	.5 Mi.	Bend in Road

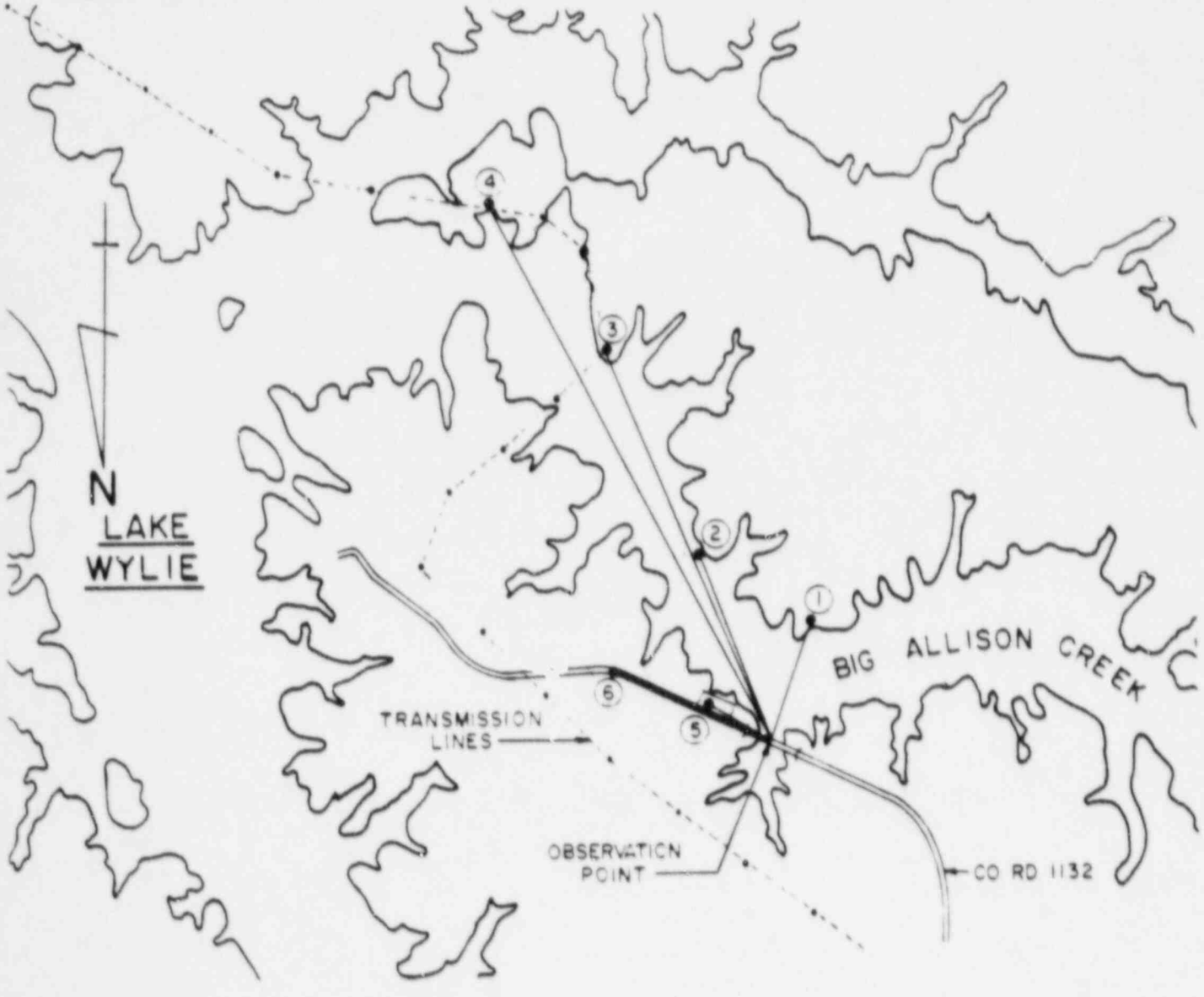


Figure 1-6

CATAWBA NUCLEAR STATION

FOG OBSERVATION FORM – OPERATIONAL

MONTH _____ YEAR _____

SITE: WYLIE HYDRO

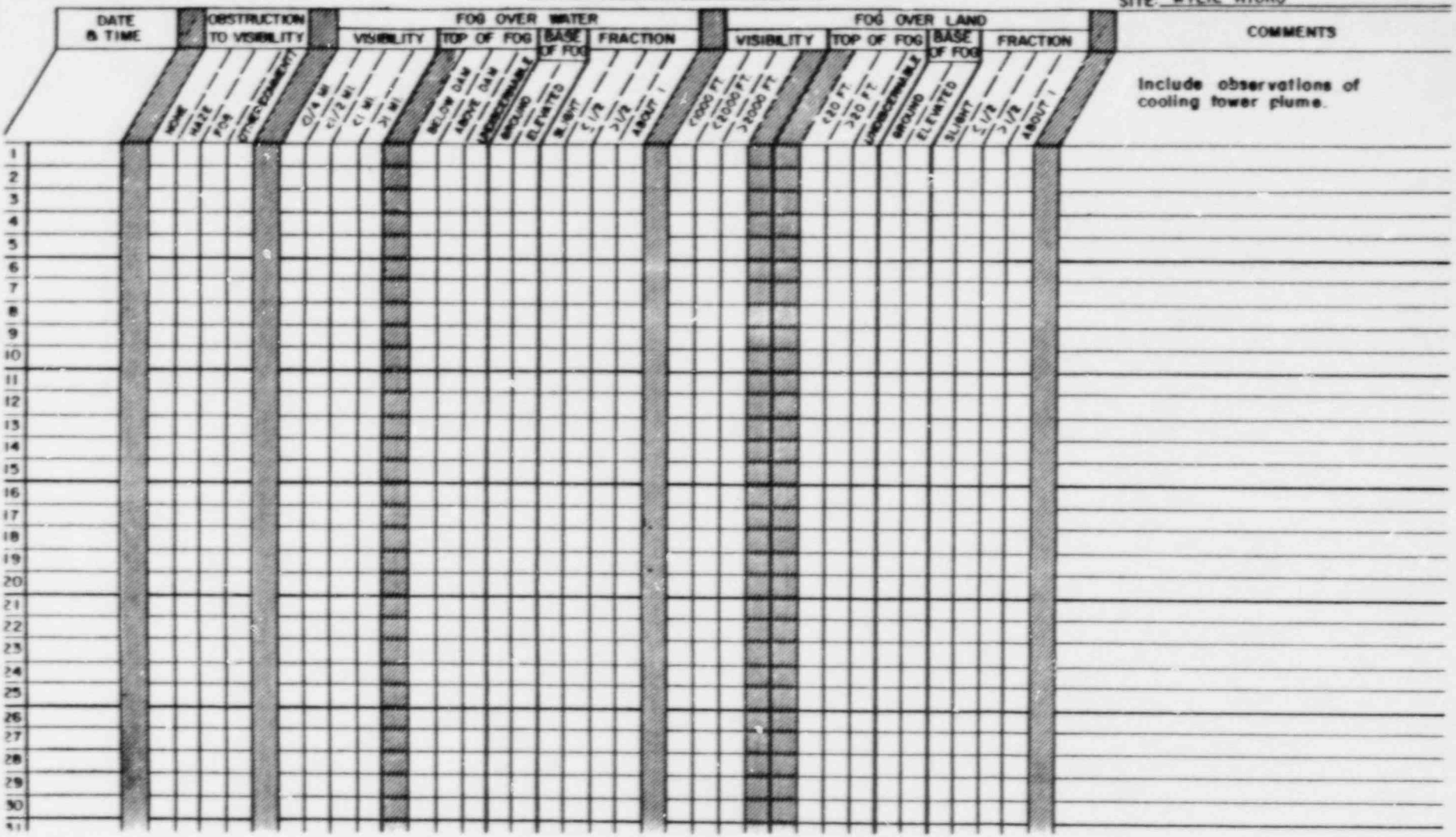


Figure 1-7

FOG OBSERVATION GUIDE

OPERATIONAL

WYLIE HYDRO

OVER WATER		
POINT No.	DISTANCE	DESCRIPTION
1	.25 Mi.	Boat House - Green
2	.5 Mi.	House With Saddle Shaped Roof
3	1.0 Mi.	Brown House

OVER LAND		
POINT No.	DISTANCE	DESCRIPTION
4	1000 ft.	Road Intersection
5	2000 ft.	Transmission Tower

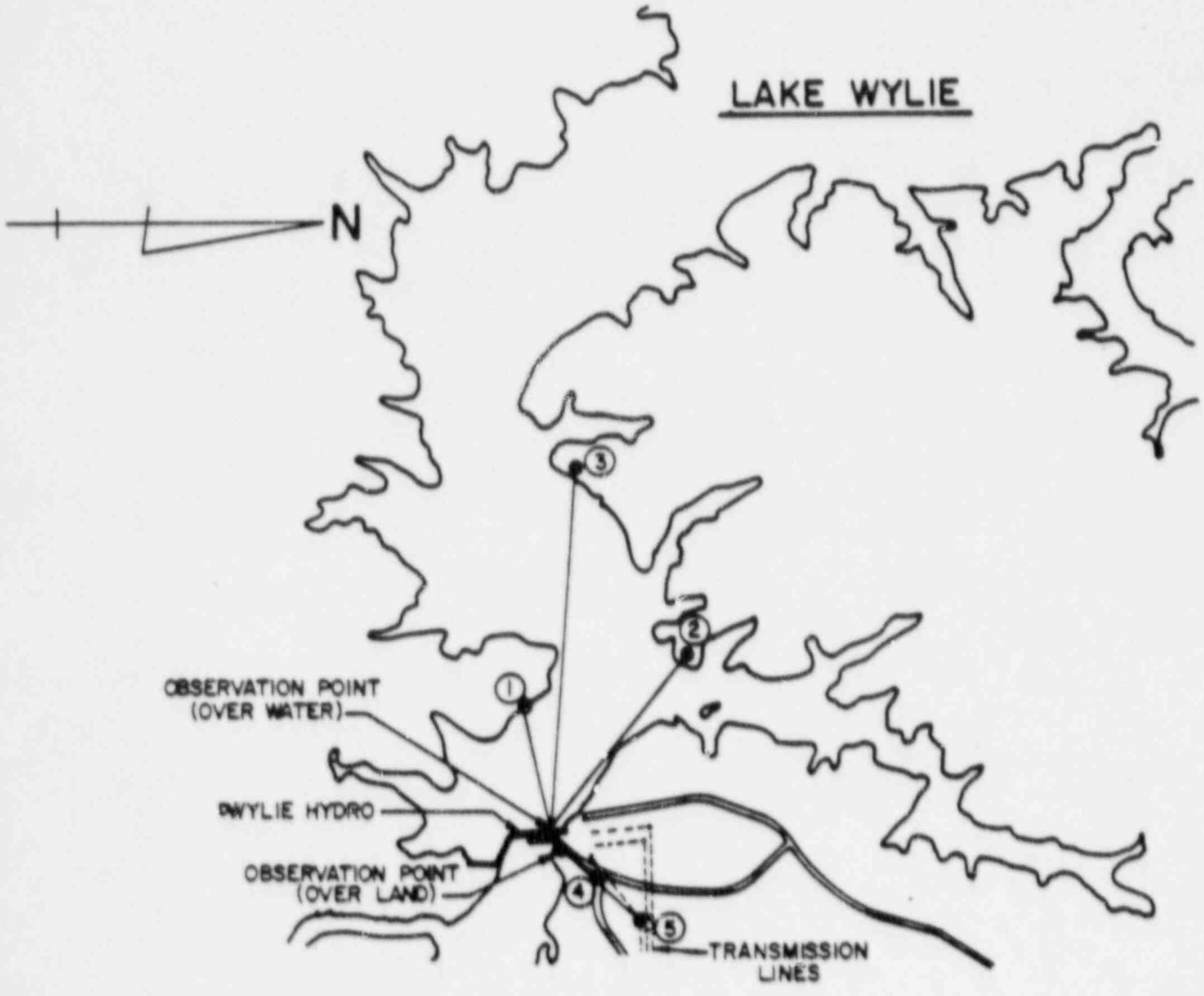


Figure 1-8

CATAWBA NUCLEAR STATION

FOG OBSERVATION FORM – OPERATIONAL

MONTH _____ YEAR _____

SITE: HIGHWAY BRIDGE (Co. Rd. 1132)

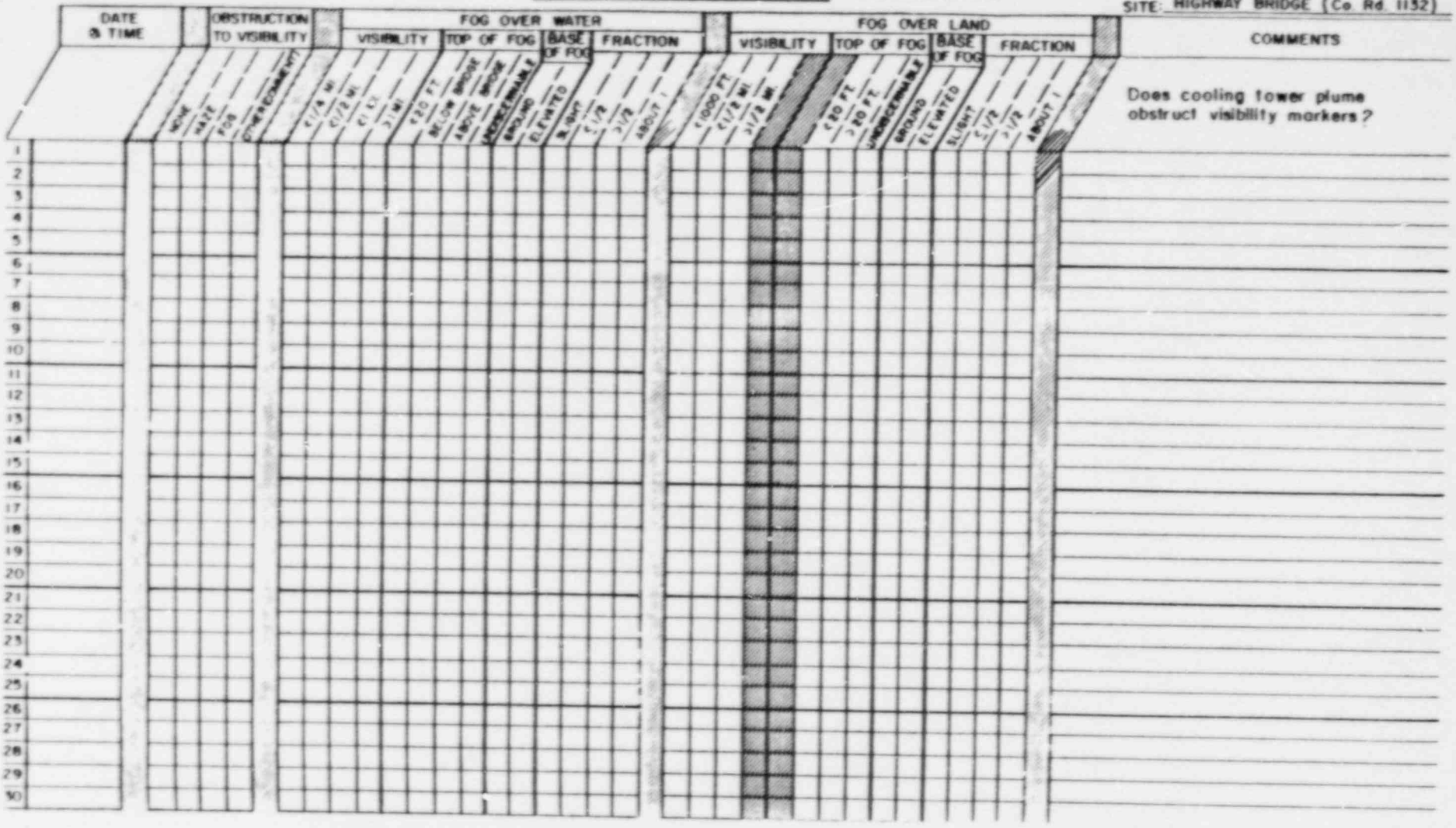


Figure 1-9

FOG OBSERVATION GUIDE

OPERATIONAL

HIGHWAY BRIDGE (Co. Rd. 1132)

OVER WATER		
POINT No.	DISTANCE	DESCRIPTION
1	.25 MI.	House With Screened Porch
2	.5 MI.	White Boat House at End of Pier
3	1.0 MI.	Transmission Tower at End of Point
4	1.5 MI.	Open Field at Shore Line (Small Tower)

OVER LAND		
POINT No.	DISTANCE	DESCRIPTION
5	1000 ft.	White Sign in Parking Lot
6	.5 MI.	Bend in Road

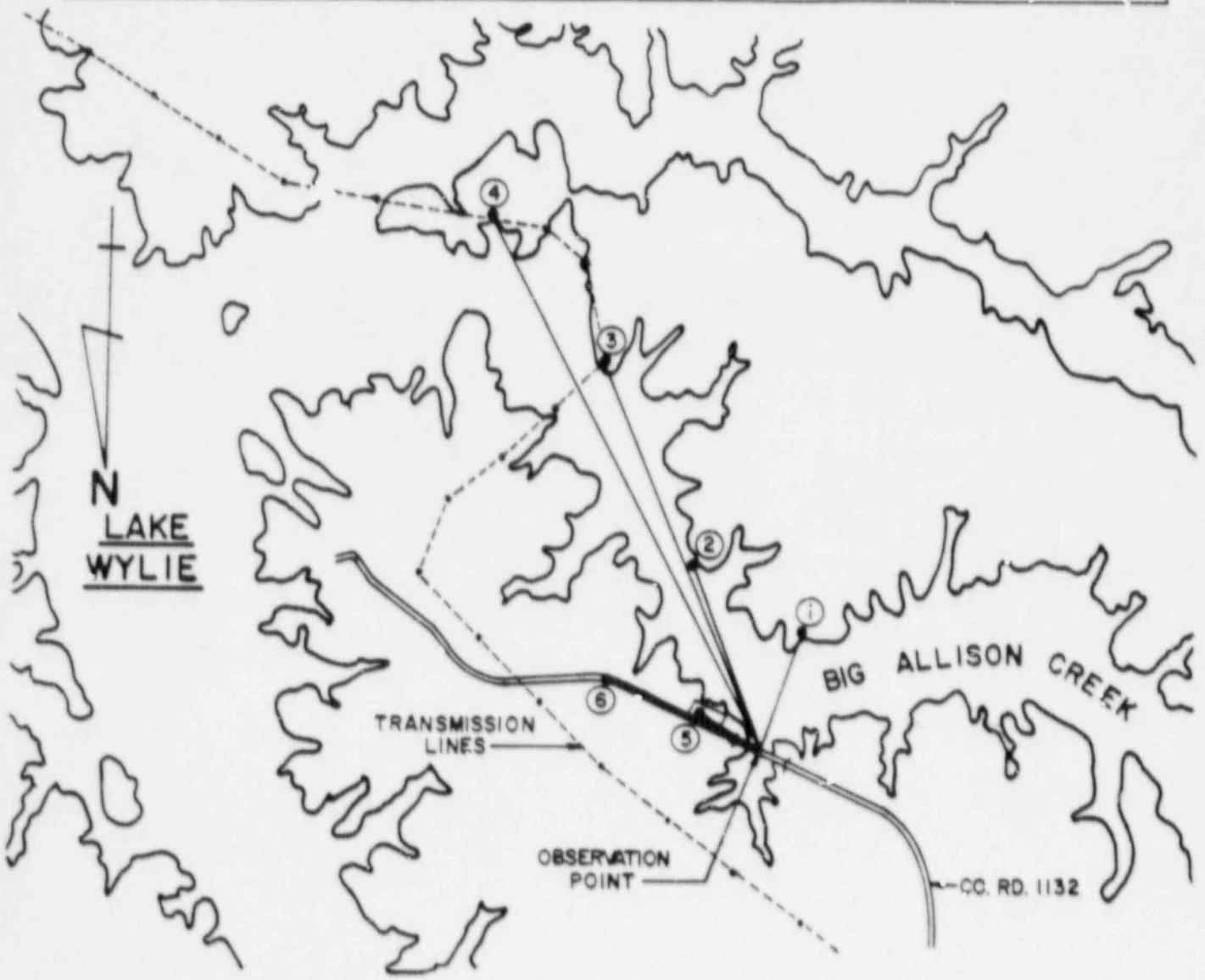


Figure 1-10

Cooling Tower Plume Questionnaire

Name _____

Date _____ Time _____

1. In the list of types of weather given below, encircle one or more which best describe the general weather during your observation of the plume.

clear	partly cloudy	rain	snow
fog	cloudy	freezing rain	thunderstorm

2. Was there a visible plume?

Yes No

3. How far from the power plant would you estimate that it ended?

on-site site to 2 miles 2-4 miles more than 4 miles

4. If it ended at a location on the map, place a "4" at that location.

5. What would you estimate the vertical extent of the plume to be?

100-500 feet 500-1000 feet Greater than 1000 feet

6. Was the wind strong enough to bring the plume or a portion of the plume to the ground?

Yes No

7. If it was, place a "6" everywhere on the map where you saw the plume or a portion of it contacting the ground.

8. Did you pass through the plume or a portion of it?

Yes No

9. Did you pass under the plume?

Yes No

10. If you passed through, under, or near the plume, did you observe drizzle from it?

Yes No

Figure 1-11

11. If you observed fog, do you think it was natural fog or fog caused by the plume?

natural fog plume fog both

If the fog was caused by the plume, place a "10" at that location.

12. Did you observe snow falling from the plume only and not from clouds?

Yes No

13. Did you observe icing on objects in the vicinity of the plume?

Yes No

14. If you observed icing caused by the plume, check one or more of the types of surfaces on which you observed it.

_____ a. trees and other vegetation

_____ b. roads

_____ c. uti'ity lines and towers

_____ d. others (please list)

15. Place a "14" on the map where you observed icing.

16. As you drove to or from the plant, did you notice changes in road conditions (rain, snow and/or fog)?

Yes No

If yes, please briefly describe what they were and where.

17. On the map, please sketch the plumes as you saw it.

18. Other comments (i.e., unusual behavior, plume touching private residencies, shadowing, etc.):

Figure 1-11 (cont.)

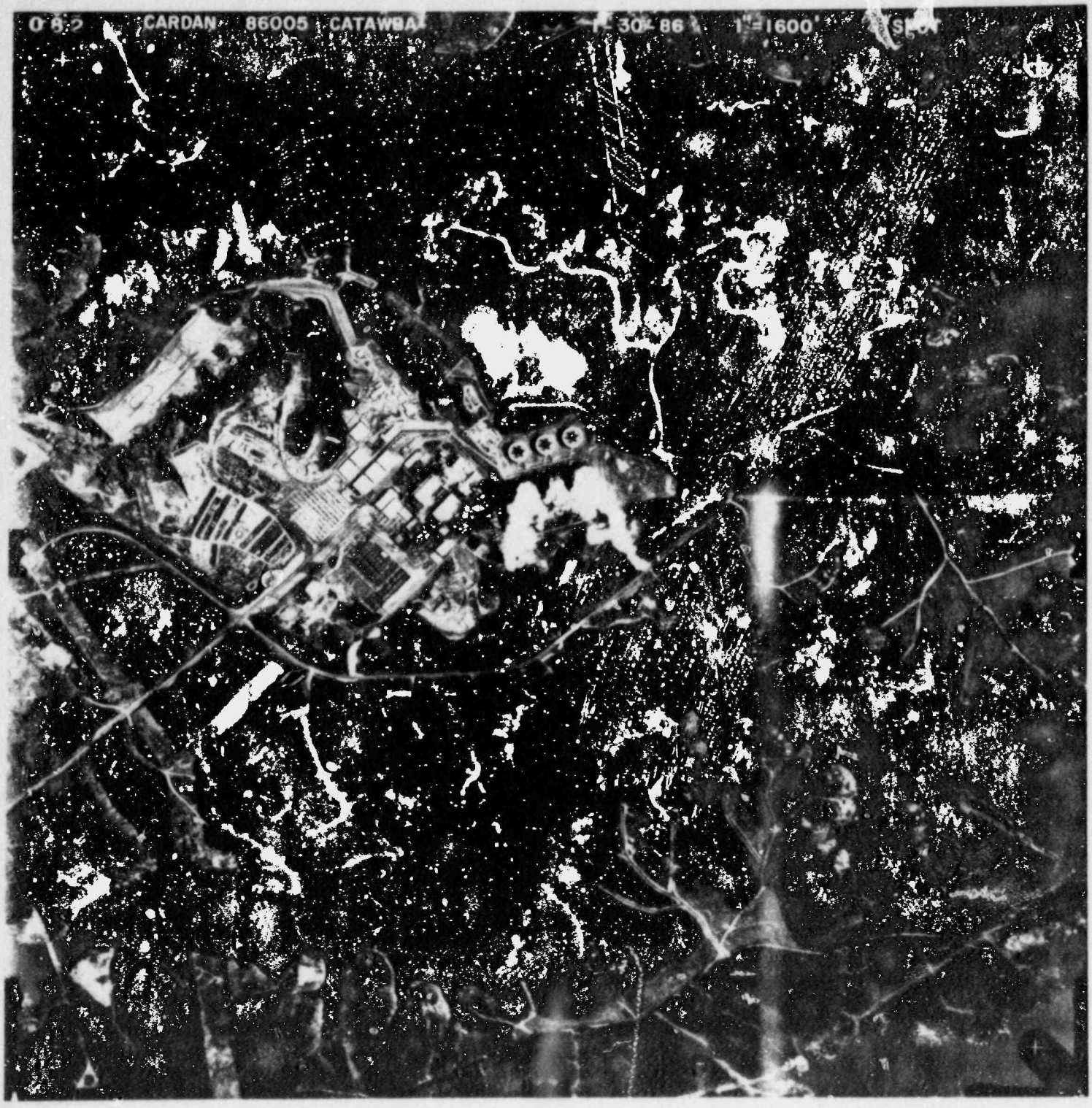


Figure 1-11 (cont.)

CATAWBA FOG STUDY

PRE-OPERATIONAL PHASE

TIME LINE

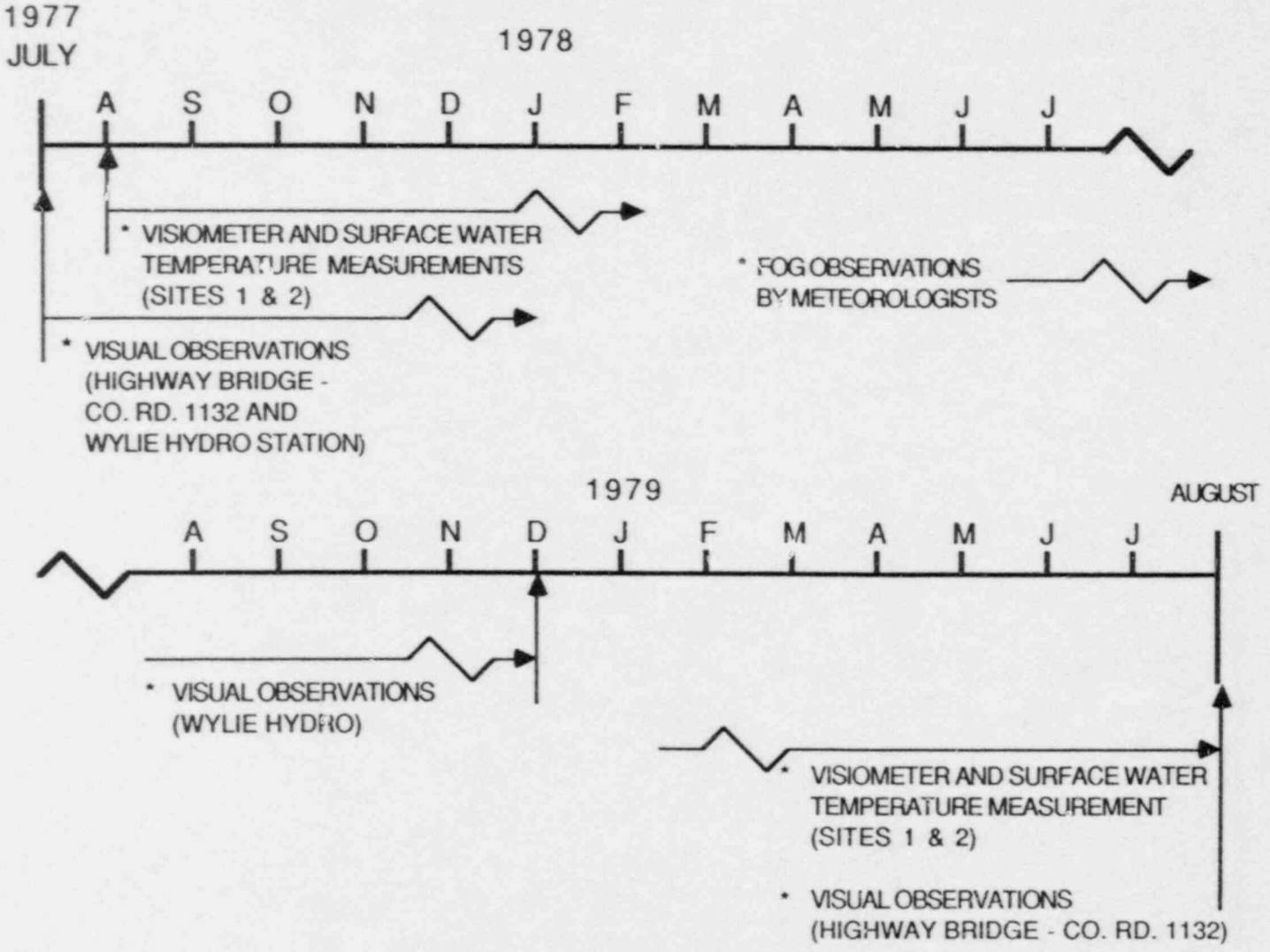


Figure 1-12

CATAWBA FOG STUDY

OPERATIONAL PHASE

TIME LINE

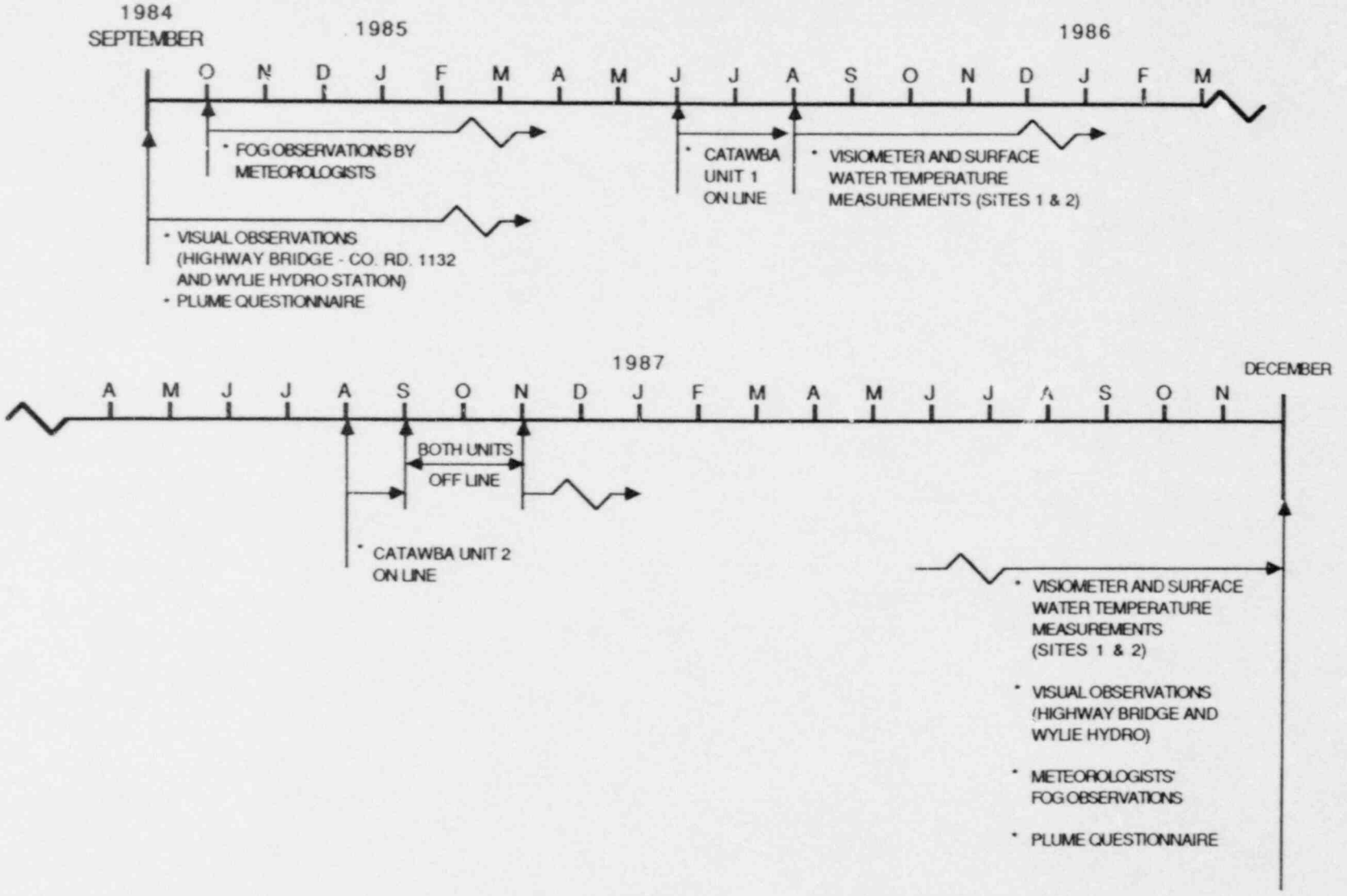


Figure 1-13

2.0 PLUME OBSERVATIONS

2.1 OBSERVATIONS OF COOLING TOWER PLUME

The Cooling Tower Plume Questionnaire was an attempt to obtain a very subjective observation of the cooling tower plume itself and the effects on the immediate area.

Summary results of the questionnaire are given in Figure 2-1. Noteworthy points and comments from the cooling tower plume survey are:

- The condensate plume was by and large confined to the immediate site area; plumes extending beyond 4 miles occurred in less than 1% of the observations.

- Restrictions to ground-level visibility due to fog and rime icing from condensate material were limited to immediate onsite locations (cooling tower yard) during periods of plume downwash, based on comments and map plume placements Downwash was noted in about 12% of the observations.

- Snowfall was not initiated from the plume.

- Changes in driving conditions were due exclusively to natural phenomena.

2.2 STEAM FOG EPISODES OBSERVED BY METEOROLOGISTS

Potential steam fog episodes were observed by company meteorologists from the fall of 1978 through the fall of 1987. Over twenty visits were made with many photographs taken. Although steam fog episodes were the primary reason for the observations, many meteorological scenarios were observed in order to study a range of fogging events. Most observations were made in the fall during maximum air-water temperature differences. Other observations were made of the cooling tower plume during high wind, during freezing temperatures and during spring fogging events.

Figure 2-2 shows the points of observation during the episodes. Not all points were visited during a particular episode, but the numbers do correspond to the general order of visitation. The more important observation points are (1) for fog at Tega Cay and a view of the lake toward Catawba; (2) for a control where plant impacts would be minimal; (4) for a clear view of the main body of the lake; (5) to ascertain the steam fog effect on the airport; (7), (8) and (9) to observe the cooling towers and the visiometer sites; and (10) to give a panoramic view of the entire Lake Wylie area including most observation points.

In general, the operation of the cooling towers seems to have no observable effects on steam fog on Lake Wylie. A change in frequency of fogging events cannot be determined from the episode observations, but direct effects can be observed. Steam fog occurs when cold air settles over warm water, allowing water vapor of the warm water to become mixed with and cooled by the cold air and to condense rapidly. Steam fog episodes are characterized by large air-sur-

face water temperature differences, small dew point depression and low wind speeds. These conditions usually occur during stable, cloudless mornings with a surface inversion. During these conditions, the cooling tower plume is most buoyant, rises straight up, and does not become a factor at the surface. Warm water is discharged into Lake Wylie and is expected to alter the steam fog situation somewhat. However, the discharge area tended to have less intense steam fog than other areas of the lake.

General observations made during fogging events are as follows:

- Heavy steam fog events are a common natural occurrence in the Piedmont Carolinas. The combination of warm water and a high frequency of cool high pressure systems in autumn with the associated low wind speeds and low morning air temperatures allows this phenomenon to take place. Plant Allen, a 800 MWe fossil-fired station located 10 miles north of Catawba on Lake Wylie, tends to exacerbate the warm surface water situation on the main part of Lake Wylie by using the lake for cooling.

- Wind speed can be very important in determining whether steam fog is formed and to what extent. Aggressive mixing of the saturated layer with dryer air can limit steam fog formation. Consequently, steam fog may form in isolated coves as opposed to the main part of the lake. Wind direction can also have an effect by determining which coves are more isolated.

- On the other hand, on calm mornings, gravity flows off of slopes in isolated coves can retard steam fog formation in these coves while heavy steam fog occurs on the main part of the lake. This was a more common

occurrence than the above situation. Plant Allen may also contribute to steam fog on the main part of the lake only. The main part of the lake will cool more slowly than the coves during the fall due to the volume of water.

- Because of the tendency of more steam fog occurring on the main part of the lake, the lower part of the lake near Wylie Hydro had more occurrences of heavy steam fog than the Catawba plant area. Also, the steam fog normally traveled down lake (river) due to northerly winds and/or gravity flows.

- Wind can also change the visibility very quickly at a particular site during steam fog events. Visibility at the highway bridge observation point (8) could change from less than a quarter of a mile to greater than a mile and a half, and back again in a matter of minutes. This is due to the sometimes fragmented nature of steam fog.

- Observations at the visiometer sites were consistent with the visiometer measurement results regarding the better visibility at the discharge visiometer (Site 2) particularly in the operational phase. Site 2 generally had less steam fog than Site 1. Wind direction would probably be the most important parameter for this phenomenon as Site 1 is exposed to the lake proper during a north wind which generally occurs during steam fog events. Even slight breezes can move steam fog around dramatically. Site 2, although more sheltered, is not exposed to a north breeze off the water.

- Steam fog could rise and form a shallow stratus layer above Lake Wylie. The stratus layer was observed to move one or two miles inland, but not the five miles to the Rock Hill airport (observation point 5).

- During steam fog events, fog would affect the Tega Cay area. Generally this was limited to the residences close to the lake.

- The cooling tower plume was observed during high wind freezing temperature events for nearby icing. Ice was observed in the area and the trees immediately surrounding the cooling towers, but always within the fenced boundary.

- Light drift from the plume was sometimes observed to fall on the nearby road when the plume was bent toward the road.

Photographs representative of interesting fogging situations are provided in Figure 2-3. The following is a description of each photograph.

Photograph 1: Taken pre-operational (1981) at I-77 and the Catawba River (2). Typical lifted steam fog along the river valley. Plumes to the left are from the Celanese Plant cooling towers.

Photograph 2: Steam fog, looking toward landmarks at the highway bridge visibility observation point (8). Typical medium steam fog showing potential for variability in visibility observations.

Photograph 3: Operational (1987) taken at visiometer Site 1 (9). Little or no steam fog near shore, but thick, low steam fog in middle of lake rising to form a lifted fog area.

Photograph 4: 1986 picture during fall, but plant was not and had not been operating for a month. Taken at Ebenezer Landing (4) looking northwest, thick steam fog forming over main part of lake, lifting and moving to the southwest. Can see cumuliform lifted fog moving left in picture toward the airport. (See next photograph.)

Photograph 5: Taken same morning as #4 at airport (5) toward Lake Wylie. Note fog in distant horizon blocking part of sun above trees. This is typical of heavy steam fog event on lake, but does not reach far inland. Airport remained open entire morning.

Photograph 6: Taken at highway bridge toward visibility markers (8). Very light, low steam fog in coves while very heavy tall steam fog on main part of lake with heights approximately 150 feet.

Photograph 7: Picture of cooling tower plume with all six towers operating from visitor overlook (7). No fog observed.

Photograph 8: Picture of cooling tower plume from visitor overlook (7) with steam fog in distance over main part of lake. Isolated coves were relatively clear of steam fog.

Photograph 9: Similar to Photograph 8 except cooling towers are not running. No fog on land, just steam fog on main part of lake in the distance.

Photograph 10: Pre-operational picture taken from Nanny Mountain Fire Tower (10) at Lake Wylie. This is typical of heavy steam fog episodes where fog is on main parts of lake only and rises up to 200 feet. Little movement inland as low winds are a prerequisite for steam fog production.

Photograph 11: Same location as Photograph 10, but no steam fog and plant operating.

Photograph 12: Transparent steam fog at the Wylie Hydro observation point (3) taken pre-operational. Steam fog is confined to the lake.

Photograph 13: Light, low steam fog at Wylie Hydro (3) looking toward Catawba with operating cooling towers. Photograph taken later in the morning when steam fog is dissipating in areas incident by sunlight.

Photograph 14: Heavy steam fog on lake at visiometer site No. 1 (9). Photograph of the erratic coverage of steam fog where the lake has very low visibility, yet it is clear at the visiometer measurement site.

Photograph 15: Fog collecting in protected valley of a transmission corridor. Pre-operational photograph taken off Hwy. 274 looking toward lake.

Photograph 16: Cooling tower plume observed on a clear day from Tega Cay observation point (1).

Results of

Cooling Tower Plume Questionnaire

Name _____

Date _____ Time _____

1. In the list of types of weather given below, encircle one or more which best describe the general weather during your observation of the plume.

clear- 59.8% partly cloudy- 7.9% rain- 10.7% snow- 0.5%

fog- 16% cloudy- 10.5% freezing rain-0.0% thunderstorm- 0.3%

2. Was there a visible plume?

Yes- 74.8% No- 25.2%

3. How far from the power plant would you estimate that it ended?

on-site	site to 2 miles	2-4 miles	more than 4 miles
68.9%	29.7%	1.4%	0.2%

4. If it ended at a location on the map, place a "4" at that location.

5. What would you estimate the vertical extent of the plume to be?

100-500 feet	500-1000 feet	Greater than 1000 feet
49.5%	45.5%	5.0%

6. Was the wind strong enough to bring the plume or a portion of the plume to the ground?

Yes- 12.2% No- 87.8%

7. If it was, place a "6" everywhere on the map where you saw the plume or a portion of it contacting the ground.

8. Did you pass through the plume or a portion of it?

Yes- 1.1% No- 98.9%

9. Did you pass under the plume?

Yes- 4.1% No- 95.9%

10. If you passed through, under, or near the plume, did you observe drizzle from it?

Yes- 33.3% No- 66.7%

Figure 2-1

11. If you observed fog, do you think it was natural fog or fog caused by the plume?

natural fog- 78.4% plume fog- 6.3% both- 15.3%

If the fog was caused by the plume, place a "10" at that location.

12. Did you observe snow falling from the plume only and not from clouds?

Yes- 0.0% No- 100%

13. Did you observe icing on objects in the vicinity of the plume?

Yes- 0.4% No- 99.6%

14. If you observed icing caused by the plume, check one or more of the types of surfaces on which you observed it.

_____ a. trees and other vegetation

_____ b. roads

_____ c. utility lines and towers

_____ d. others (please list)

15. Place a "14" on the map where you observed icing.

16. As you drove to or from the plant, did you notice changes in road conditions (rain, snow and/or fog)?

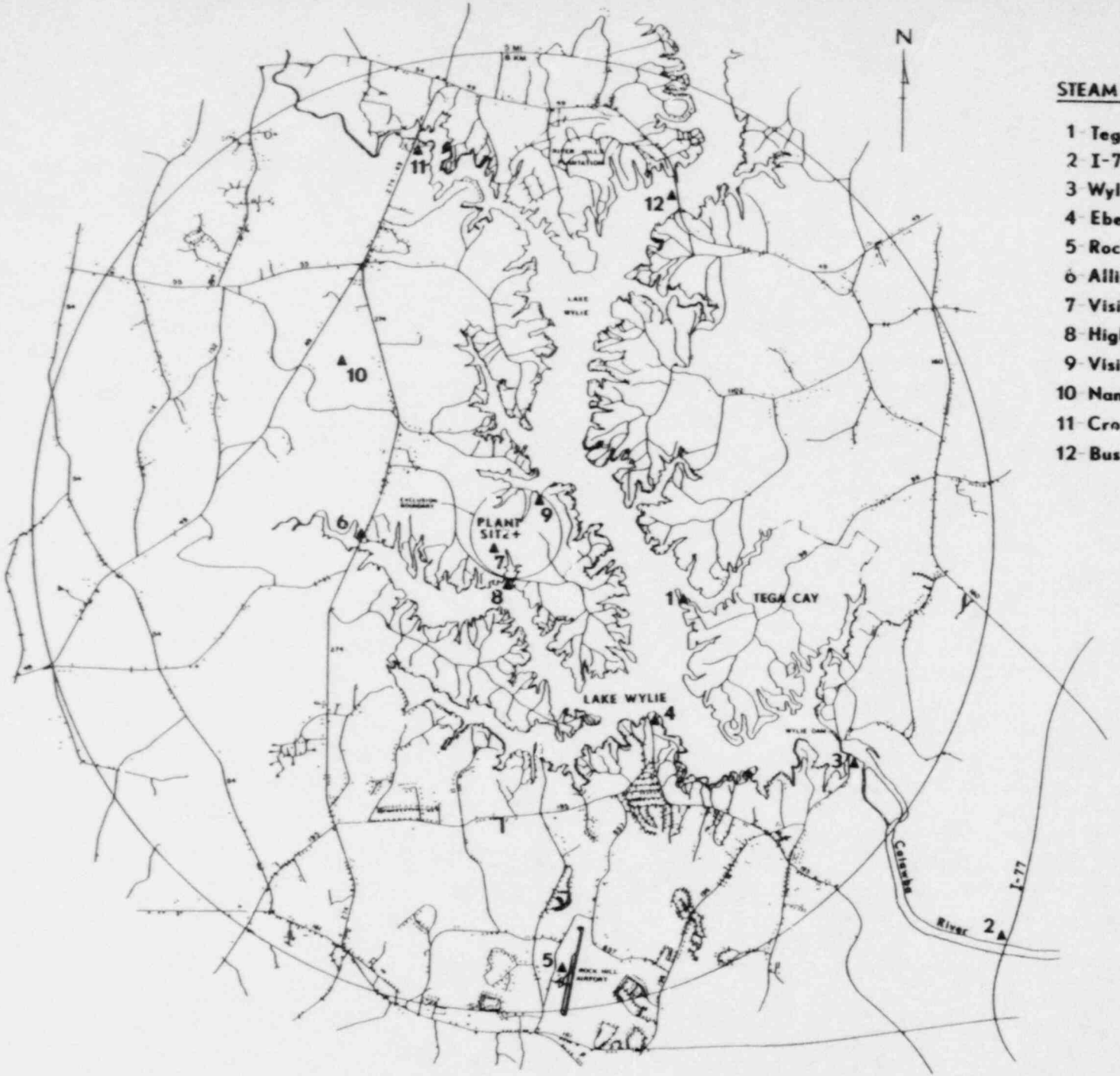
Yes- 1.5% No- 98.5%

If yes, please briefly describe what they were and where.

17. On the map, please sketch the plumes as you saw it.

18. Other comments (i.e., unusual behavior, plume touching private residencies, shadowing, etc.):

Figure 2-1 (cont)



KEY TO
STEAM FOG OBSERVATION POINTS

1 Tega Cay Park
2 I-77 at Catawba River
3 Wylie Hydro
4 Ebenezer Landing
5 Rock Hill Airport
6 Allison Creek
7 Visitor Overlook
8 Highway Bridge (Visiometer Site no. 2)
9 Visiometer Site no. 1
10 Nanny Mtn. Fire Tower
11 Crowders Creek
12 Buster Boyd Bridge

Figure 2--2
Steam Fog Observation Points

Figure 2-3
Fogging Event Photographs

Figure 2-3 (cont.)
Fogging Event Photographs

Figure 2-3 (cont.)
Fogging Event Photographs

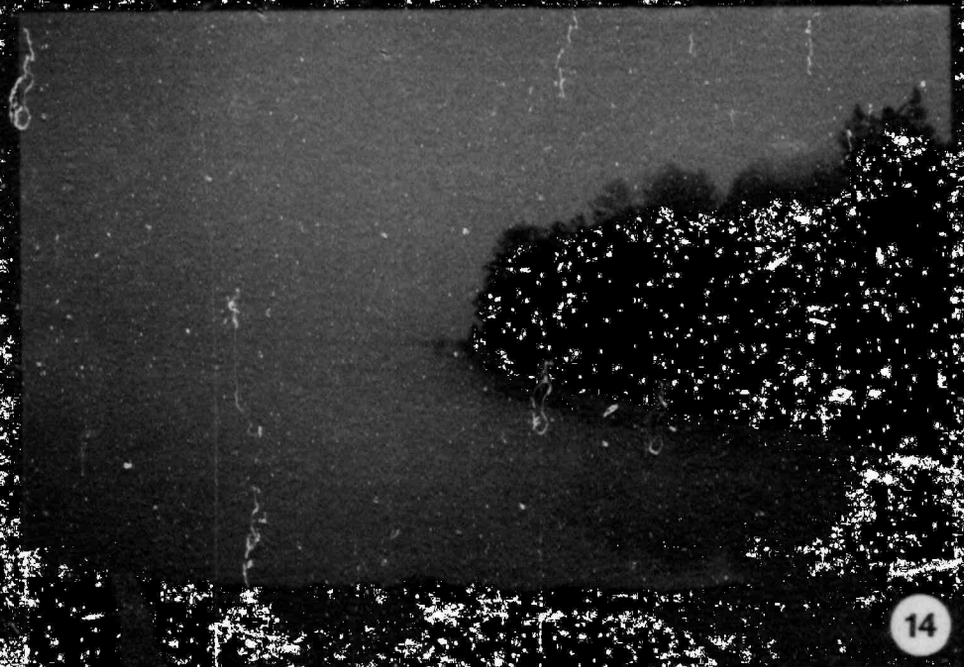


Figure 2-3 (cont.)
Fogging Event Photographs

3.0 VISUAL OBSERVATION PROGRAM

3.1 SUMMARY OF REDUCED DATA

The information recorded during the visual fog observation programs at the highway bridge (Co. Rd. 1132) and Wylie Hydro Station is summarized in Figure 3-1 and Table 3-1. Since Wylie Hydro is located about 6 kilometers (3.75 miles) southeast of Catawba (see Figure 2-2), it can be used as a control to compare trends with the highway bridge site, which is near the cooling towers (see Figure 1-2). The Charlotte National Weather Service (NWS) fog observations indicate general regional trends.

The highway bridge and Wylie Hydro observations of fog events (Figure 3-1) follow similar trends, with Wylie Hydro indicating generally more fog observations in the prime steam fog months for both phases of the study. Duke Power meteorologists also usually observed more, thicker steam fog at Wylie Hydro. The highway bridge observations, which would reflect any influence from the Catawba plant operations, show generally fewer observations of fog during the operational phase of the study. November is the only month which shows somewhat more fog events in the operational phase at the highway bridge site.

3.2 COMPARISON WITH OTHER VISIBILITY DATA

The Wylie Hydro and highway bridge observers recorded a visibility estimate whenever they recorded an observation of fog. This visibility information is shown in Table 3-1, which also shows visibility data from Visiometers 1 and 2 and Charlotte NWS categorized in the same format.

The cumulative percentages of all visibility observations less than 1 mile indicate improved visibility during the operational phase for all sites except Visiometer 1, which shows basically no change.

Visibility measurements aimed at gauging the impact of heated water discharge on the occurrence of steam fog are also affected by the natural variation of both radiation/frontal fog. Cumulative frequencies of visibility less than 1 mile in Table 3-1 show a decrease during the operational period when compared to the pre-operational measurements. This occurs despite the increase in surface water temperatures operationally at both the intake and discharge areas (see Figure 4-7). Also, Figure 4-6 shows that the discharge area has higher surface water temperatures during the operational period than the intake area, which is expected. The potential for enhanced steam fog due to natural variation and the additional heated water discharge is evidently overshadowed by a decrease in the incidence of natural radiation/frontal fog.

Chapter 4 will analyze the visiometer data and Charlotte NWS visibility data in more detail.

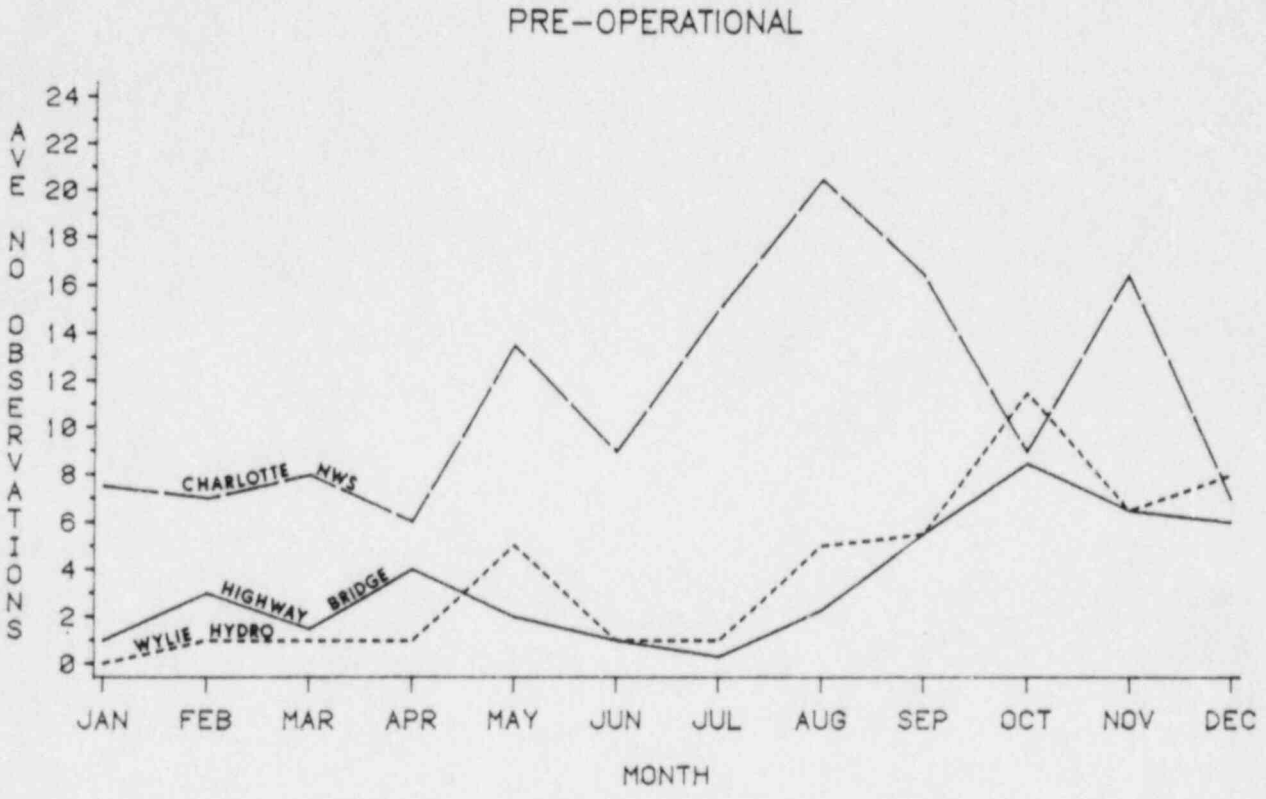
Table 3-1

VISIBILITY COMPARISONS
All Observation Methods (7 AM only)

SITE	TIME PERIOD	VISIBILITY: Less than 1/4 mi %	Less than 1/4 mi CUMUL. %	1/4 to 1/2 mi %	1/4 to 1/2 mi CUMUL. %	1/2 to 1 mi %	1/2 to 1 mi CUMUL. %	More than 1 mi %	More than 1 mi CUMUL. %	10th Percentile Visibility (Miles)
HIGHWAY BRIDGE (Co. Rd. 1132)	Pre-operational	6.8	[6.8]	3.5	[10.3]	4.2	[14.5]	85.5	[100]	0.48
	Operational	3.4	[3.4]	2.1	[5.5]	2.5	[8.0]	91.9	[100]	>1.00
WYLIE HYDRO STATION	Pre-operational*	14.2	[14.2]	10.0	[24.2]	1.5	[25.7]	74.3	[100]	0.18
	Operational	6.6	[6.6]	4.2	[10.8]	1.8	[12.6]	87.4	[100]	0.46
VISIOMETER SITE 1	Pre-operational	1.2	[1.2]	1.3	[2.5]	1.9	[4.4]	95.6	[100]	1.42
	Operational	0.8	[0.8]	1.1	[1.9]	2.6	[4.5]	95.5	[100]	1.48
VISIOMETER SITE 2	Pre-operational	2.1	[2.1]	3.0	[5.1]	2.0	[7.1]	92.9	[100]	1.22
	Operational	0.3	[0.3]	1.2	[1.5]	2.3	[3.8]	96.2	[100]	2.18
CHARLOTTE NWS	Pre-operational	2.3	[2.3]	1.9	[4.2]	1.9	[6.1]	93.9	[100]	0.99
	Operational	2.2	[2.2]	1.2	[3.4]	1.4	[4.8]	95.2	[100]	1.79

*Observations from 7/77 to 11/78 only

AVERAGE MONTHLY OBSERVATIONS OF FOG (7 AM)



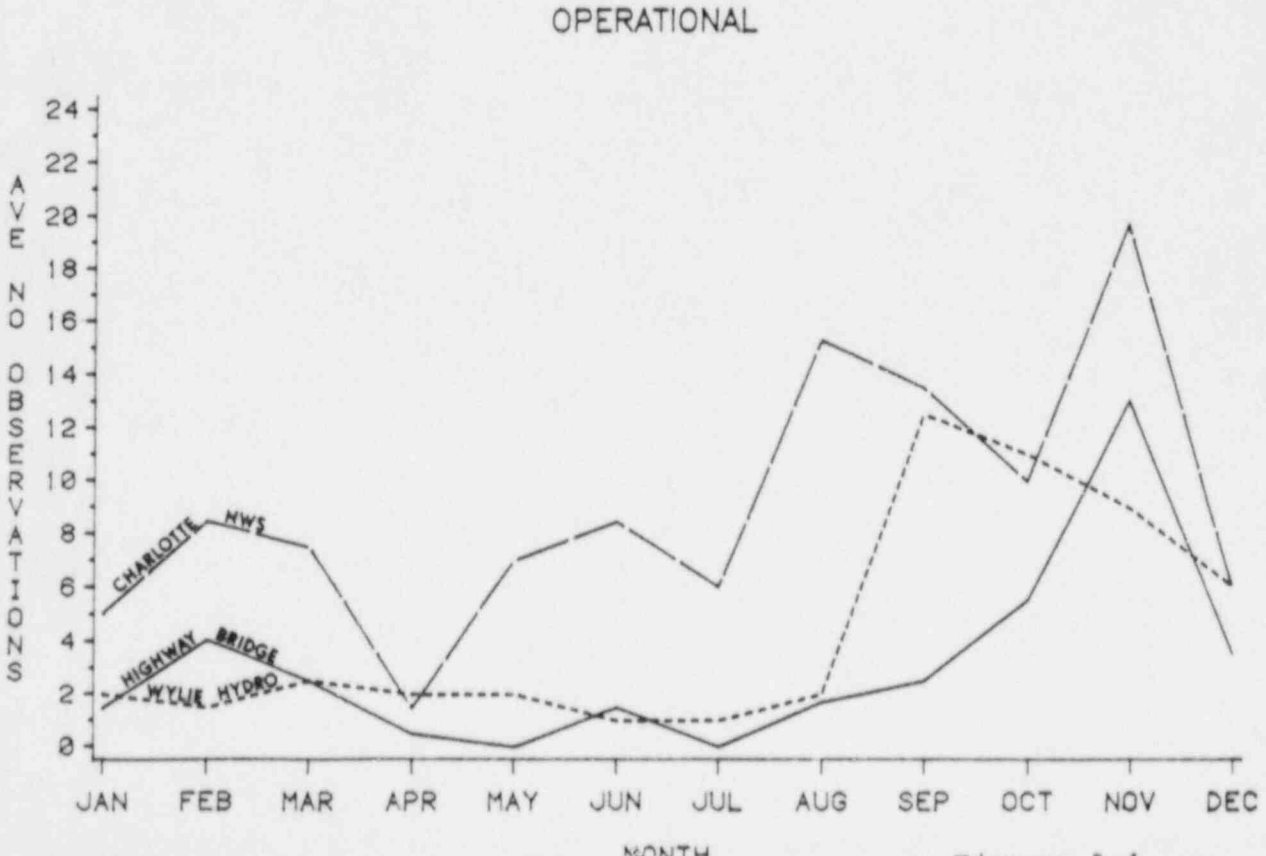


Figure 3-1

4.0 VISIOMETER MONITORING PROGRAM

4.1 SUMMARY OF REDUCED DATA

The visibility data collected by Visiometer 1 and Visiometer 2 during the pre-operational and operational phases of the study have been analyzed on a monthly and hourly basis (Figures 4-1 and 4-2). The 10th percentile criterion was chosen because it gives values within the 50 feet to 6 mile accuracy range of the visiometers, and is easily used to compare the relative visibilities of the two visiometers and the Charlotte NWS data. Charlotte data, Figure 4-3, are used as representative of natural variations in regional visibility since it is collected approximately 13 miles northeast of Catawba at Charlotte/Douglas International Airport (see Figure 1-1). The 10th percentile value means that 10 percent of the visibility observations for a particular site are below that value, and conversely 90 percent of the observations are above that value. Therefore, a higher value for the 10th percentile indicates better relative visibility compared to a lower value.

Visiometer 1, analyzed on the monthly basis, follows similar trends and values for the two phases of the study. Based on hourly criteria, Visiometer 1 shows very similar visibility during the early morning hours (the prime fogging time) while displaying slightly poorer visibility in the operational phase for the remainder of the hours.

Visiometer 2 follows similar trends on the monthly and hourly graphs, but shows marked improvement of visibility during the operational phase. The Charlotte NWS graphs (Figure 4-3) also show consistently better visibility values for both

the monthly and hourly analyses in the operational phase of the study. In summary, considering the relative values on Figures 4-1, 4-2 and 4-3, it appears that natural visibility in the region and visibility measured at Visiometer Site 2 have improved significantly in the time frame since the cooling towers became operational. The visibility at Site 1 appears to have remained fairly constant. Section 4.3 details statistical tests which were used to study the visiometer and NWS data to determine any significant differences between the pre-operational and operational data.

4.2 COMPARISON WITH AREA VISIBILITY CLIMATOLOGY

The visiometer data for both sites and the Charlotte NWS data are compared monthly and hourly on Figures 4-4 and 4-5, respectively. All three data bases show similar trends whether in the pre-operational phase or operational phase, but the relative 10th percentile values of each vary. Comparing Site 1 and Site 2, Visiometer 1 shows generally better visibility in the monthly pre-operational phase while Visiometer 2 shows markedly better visibility in the monthly operational phase. The NWS visibility shows similar trends to the two sites but the relative values vary somewhat randomly.

On an hourly basis, Site 1 and Site 2 display the same trends as the monthly data. Site 1 is better in the pre-operational phase while Site 2 is decidedly better in the operational phase. Charlotte NWS data show similar trends but relative values vary.

Figures 4-4 and 4-5 graphically illustrate that visibilities measured at Visiometers 1 and 2 follow the regional trends as measured by the Charlotte NWS at Charlotte/Douglas International Airport.

4.3 STATISTICAL SIGNIFICANCE TEST

A statistical test can be used to assess whether the operation of the Catawba cooling towers enhances the natural reductions in visibility at the two visiometer sites. The purpose of the test is to show if a statistically significant increase in the number of hours of poor visibility episodes occurs during operation of the cooling towers. Charlotte NWS records provide a baseline to indicate natural visibility trends in the region. The statistical method found to be most useful is the 2 x 2, or tetrachoric, contingency table. This method was previously used in a University of Michigan study to test independence of cooling tower operation and poor visibility/fog occurrences at nearby visiometer sites to the Palisades Nuclear Plant.[1] This method is especially useful when samples are not independent, as in the case of most meteorological measurements. The theory behind this test is that if there are two events, A and B, only one of which must occur, and two other events, C and D, only one of which must occur, a determination can be made concerning any association between the events of A or B and C or D.

As an example, the frequencies of occurrence of A, B, C and D are set up in the following form:

	Visiometer Site		
	Visibility > 1 mile	Visibility ≦ 1 mile	(Total)
Pre-Operational	A	B	A + B
Operational	C	D	C + D
	A + C	B + D	N = A+B+C+D

A Chi-square test is performed on the table to determine the independence of the elements in the table. The premise is that if the elements are found independent then there is no significant difference in the number of poor visibility episodes between pre-operation and operation of the cooling towers.

The Chi-square test statistic (x^2) is generated from the 2 x 2 tables using the following equation.

$$x^2 = \frac{N(|AD - BC| - 0.5N)^2}{(A+B)(A+C)(B+D)(C+D)}$$

The Chi-square theoretical value (χ^2) is taken from a standard table.[2] This study assumes a 95% confidence level and 1 degree of freedom, which gives a value of 3.84 on the standard Chi-square distribution table.

The null hypothesis being tested is as follows:

> "The occurrence of visibility episodes of less than one mile at each visiometer site is independent of the operational status of tne cooling towers."

The hypothesis can be rejected if the minimum expected value (E) of Cell B is $\geq$ 5 and if the value of $x^2 \geq \chi^2_{95}$. The value of E for Cell B is given by the following formula:

$$E_B = (A+B)(B+D)/N$$

The number of visibility observations used in this study is sufficiently large so that the minimum expected value (E) for Cell B is always $\geq$ 5. Therefore,

the main concern when evaluating the visiom ter data with the contingency tables is whether or not the test statistic x^2 is $\geq$ the theoretical value x^2_{95}.

Visiometer Sites 1 and 2 and Charlotte NWS data were evaluated on an annual basis and also a seasonal basis. Table 4-1 lists the visibility frequencies for all the contingency tables. The results are summarized in Table 4-2, which lists the five categories of analysis for both phases of the study for each visibility recording site (Visiometers 1 and 2 and Charlotte NWS). A category with significantly more poor visibility events is marked dependent (DEP). Visiometer 1 shows independence between the frequency of poor visibility events and the pre-operational/operational status of the cooling towers for the annual basis as well as for all the seasons except summer. The summer season indicates increased frequency of poor visibility events in the operational phase for Site 1. Visiometer 2 shows a significantly higher frequency of poor visibility events during the pre-operational period for the annual basis and three of the four seasons. The summer season for Visiometer 2 shows independence of the number of poor visibility events and the pre-operational/operational status of the cooling towers. Charlotte NWS visibilities show independence of pre-operational/operational data for the autumn season while revealing a higher frequency of poor visibility episodes in the pre-operational phase for all other categories.

All but the Visiometer Site 1 summer category on the summary Table 4-1 show that the operation of the Catawba Nuclear Station cooling towers does not significantly increase the frequency of poor visibility events ($\leq$ 1 mile) at Visiometer Sites 1 and 2.

The occurrence of increased poor visibility episodes during the operational phase summer seasons at Visiometer Site 1 appears to be the result of natural variability. Visual observations of natural fogging events by Duke Power meteorologists usually discovered a more pronounced fog cover in the cove at Site 1 as compared to Site 2. Natural variations in weather conditions along with different site characteristics could adequately explain this decreased visibility at Site 1 during the summer periods of the operational phase of the study, as well as the better visibility at Site 2 during the operational phase.

In conclusion, statistical analysis of the visiometer data indicates that the operation of the Catawba Station cooling towers does not impair the general visibility of the region surrounding the plant.

4.4 ANALYSIS OF WATER TEMPERATURE DATA FOR STEAM FOG

Surface water temperatures at Site 1 and Site 2 (see Figure 1-2) were measured continuously during both the pre-operational and operational phases of the study. The results have been tabulated into average monthly surface water temperatures and appear on the graphs in Figures 4-6 and 4-7.

Figure 4-6 compares Site 1 and Site 2 for each phase of the study. While Site 2 is generally slightly warmer (less than 2°C) than Site 1 in the pre-operational phase, the difference is more pronounced during the operational phase. Site 2 is up to 4°C warmer on the average during the winter months. This is expected since Site 2 is near the discharge area for plant low pressure service water.

Figure 4-7 compares the two phases of the study for each site individually. For Site 1, the operational phase shows warmer average temperatures (up to 3°C) for January through July (except April) and then basically no differences for August through December. Steam fog would most likely appear in the fall months as night time temperatures can drop sharply while the lake water remains much warmer. The Site 1 graph therefore indicates that water temperatures north of the plant in the operational phase would not tend to cause any increase in the occurrence of steam fog during the prime steam fog months, all other factors being equal. This agrees with the visibility analyses discussed in Sections 4.1 and 4.3 which conclude that the general visibility at Visiometer Site 1 did not significantly change during the operational phase of the study.

The Site 2 graph in Figure 4-7 indicates that the average water temperatures in the low pressure service water discharge area are higher (up to 5°C) during the operational phase of the study. The prime steam fog months show up to 3°C warmer average temperatures. This would tend to indicate that, all other factors being equal, more steam fog events would have occurred since the cooling towers began operating. However, the actual number of fogging events observed at the highway bridge (Co. Rd. 1132), where Site 2 is located, did not change significantly during the operational phase (see Figure 3-1). In fact, visibility readings at the Site 2 visiometer indicate that visibility was actually better during the operational phase.

The higher operational temperatures in Figure 4-7 are consistent with a thermal plume analysis which was performed on the combined service water and cooling tower blowdown releases into the Allison Creek arm of Lake Wylie. The thermal plume analysis was performed as part of a 316(a) demonstration at Catawba.

Areas enclosed by the 2.8°C isotherm (above ambient lake temperatures) and the 32.2°C isotherm, with the percent of lake surface area affected, are presented on a seasonal basis in Table 4-3 for average and worst-case conditions (the 2.8°C delta isotherm and the 32.2°C isotherm correspond to water quality standard limits).

Under worst-case winter (February) conditions the 2.8°C above ambient isotherm would extend from the mouth of the discharge cove (bridge location) to less than 914 m downstream and to 244 m upstream of the Allison Creek arm of Lake Wylie. This would represent less than 0.9% of the total lake area. Under average winter conditions it would affect only 0.6% of the total lake area. Under worst-case summer (August) conditions the 2.8°C above ambient isotherm would be confined almost entirely to the discharge cove and the 32.2°C isotherm would extend from the mouth of the discharge cove to less than 914 m downstream and 244 m upstream of the Allison Creek arm of Lake Wylie. This would represent an area bounded by the 32.2°C isotherm of about 40 ha or about 1.1% of the total lake area. Under average summer conditions the 32.2°C isotherm would enclose 2 ha or 0.1% of the total lake area.

TABLE 4-1
CONTINGENCY TABLES

	VISIOMETER SITE 1			VISIOMETER SITE 2			CHARLOTTE NWS		
	VIS > 1 MILE	VIS <= 1 MILE		VIS > 1 MILE	VIS <= 1 MILE		VIS > 1 MILE	VIS <= 1 MILE	
ANNUAL									
PRE-OPERATIONAL	16183	328	16511	15290	594	15884	5565	275	5840
OPERATIONAL	14478	339	14817	14454	206	14660	5760	152	5912
	30661	667	31328	29744	800	30544	11325	427	11752
SPRING									
PRE-OPERATIONAL	4304	25	4329	4058	31	4089	1430	42	1472
OPERATIONAL	2849	20	2869	3892	42	3934	1455	17	1472
	7153	45	7198	7950	73	8023	2885	59	2944
SUMMER									
PRE-OPERATIONAL	3675	42	3717	3176	223	3399	1441	31	1472
OPERATIONAL	4039	101	4140	3511	51	3562	1700	20	1720
	7714	143	7857	6687	274	6961	3141	51	3192
AUTUMN									
PRE-OPERATIONAL	4205	147	4352	4006	190	4196	1363	93	1456
OPERATIONAL	3991	109	4100	3606	66	3672	1222	58	1280
	8196	256	8452	7612	256	7868	2585	151	2736
WINTER									
PRE-OPERATIONAL	3999	114	4113	4050	150	4200	1331	109	1440
OPERATIONAL	3599	109	3708	3445	47	3492	1383	57	1440
	7598	223	7821	7495	197	7692	2714	166	2880

TABLE 4-2
SUMMARY OF 2 x 2 CONTINGENCY TABLES

'DEP' - Increased frequency of poor visibility events (<=1 mile) DEPENDENT on either pre-operational or operational status

'IND' - Frequency of poor visibility events (<=1 mile) is INDEPENDENT of the pre-operational or operational status

VISIOMETER SITE 1

	ANNUAL	SPRING	SUMMER	AUTUMN	WINTER
PRE-OPERATIONAL	IND	IND		IND	IND
OPERATIONAL	IND	IND	DEP	IND	IND

VISIOMETER SITE 2

	ANNUAL	SPRING	SUMMER	AUTUMN	WINTER
PRE-OPERATIONAL	DEP	DEP	IND	DEP	DEP
OPERATIONAL			IND		

CHARLOTTE NWS

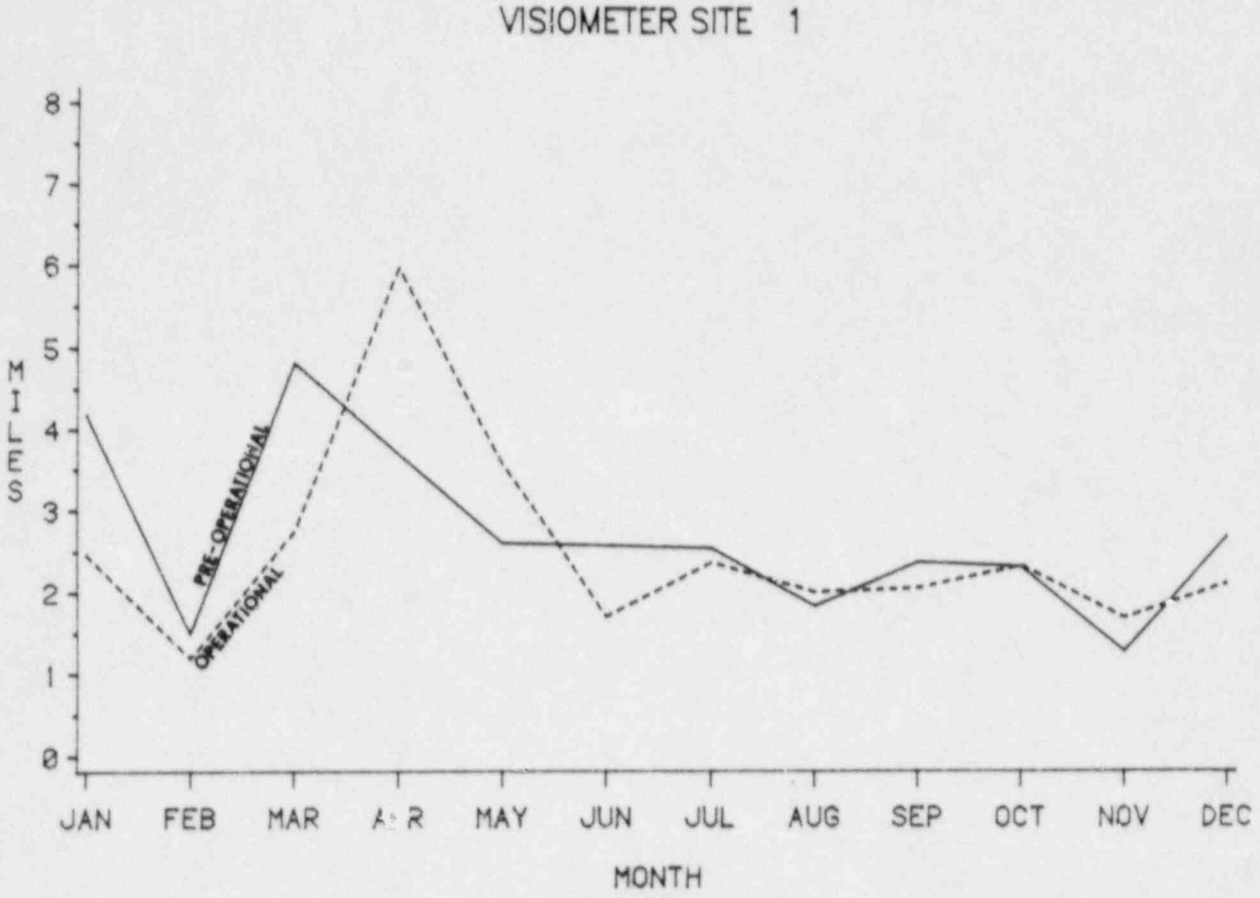
	ANNUAL	SPRING	SUMMER	AUTUMN	WINTER
PRE-OPERATIONAL	DEP	DEP	DEP	IND	DEP
OPERATIONAL				IND	

Table 4-3
Predicted Maximum Thermal Plume Extent Under
Average and Worst-Case Conditions

	Average conditions				Worst-case conditions			
Season	Area to 2.8°C (5°F) above ambient isotherm, ha (acre)	% total* lake area	Area to 32.2°C (90°F) isotherm, ha (acre)	% total* lake area	Area to 2.8°F (5°F) above ambient isotherm, ha (acre)	% total** lake area	Area to 32.2°C (90°F) isotherm, ha (acre)	% total** lake area
Spring	32 (80)	0.6	≈ 0	≈ 0	36 (90)	1.1	≈ 0	≈ 0
Summer	2 (5)	0.1	2 (5)	0.1	14 (35)	0.4	40 (100)	1.1
Fall	20 (50)	0.4	≈ 0	≈ 0	24 (60)	0.7	≈ 0	≈ 0
Winter	30 (75)	0.6	≈ 0	≈ 0	39 (85)	0.9	≈ 0	≈ 0

*Based on full pond surface area of 5041 ha (12,445 acres).
**Based on maximum drawdown 3 m (10 ft), area of 3724 ha (9,203 acres).

10TH PERCENTILE VISIBILITY BY MONTH



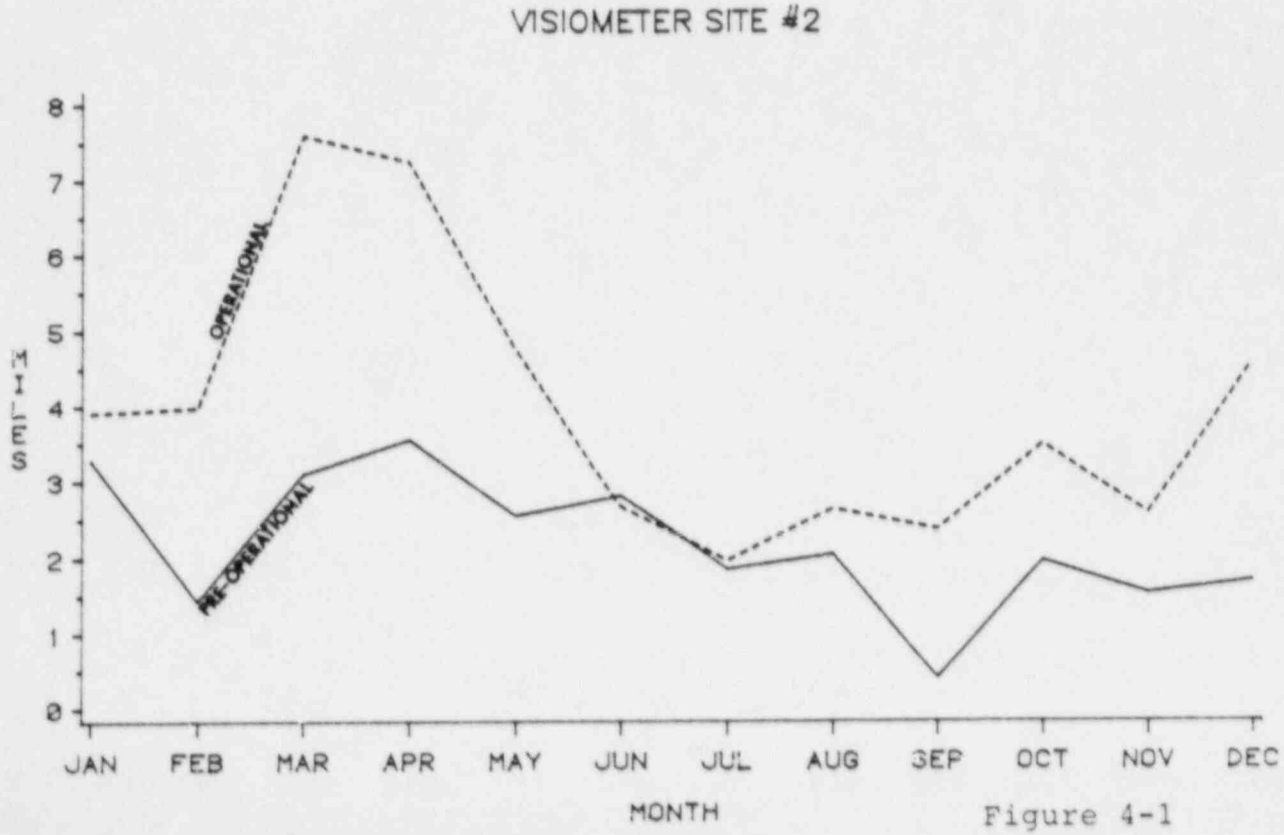
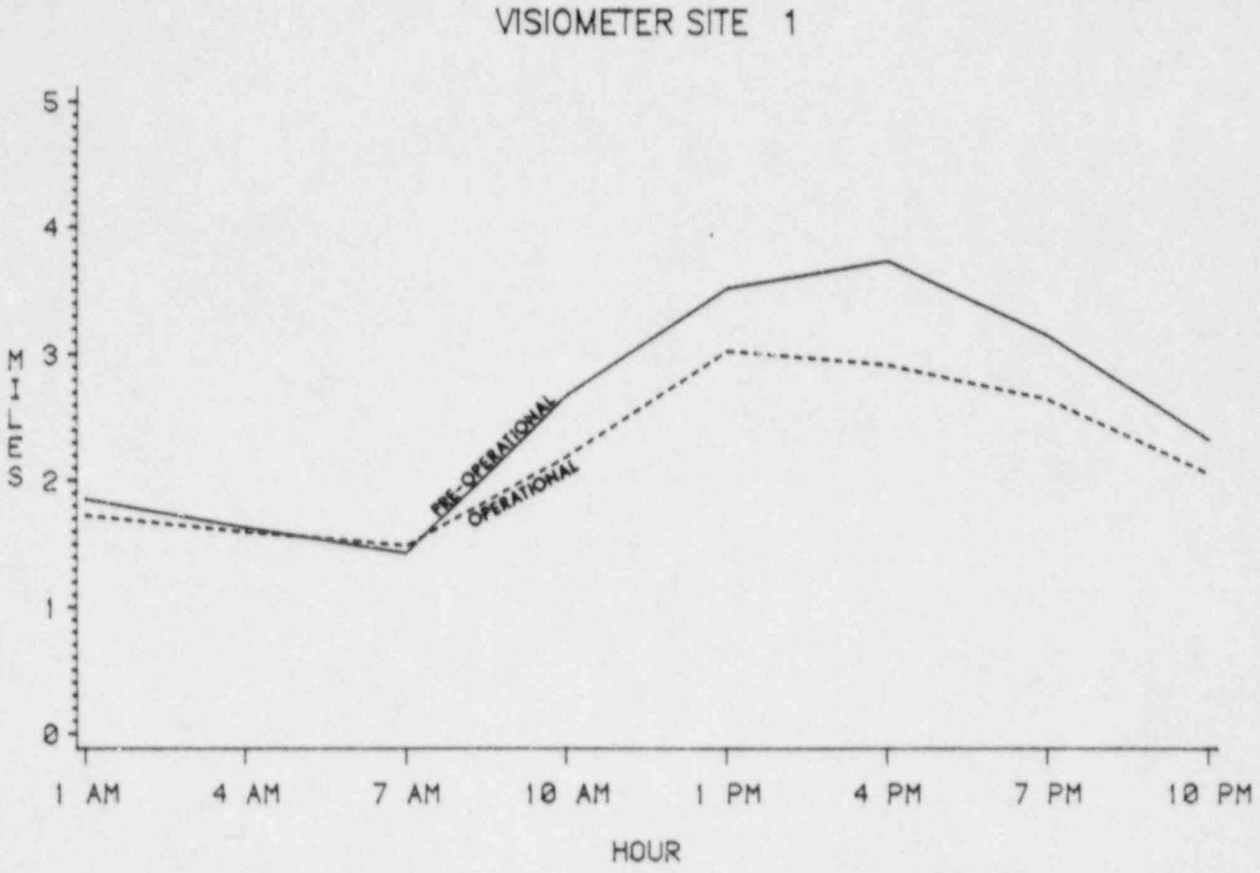


Figure 4-1

10TH PERCENTILE VISIBILITY BY HOUR



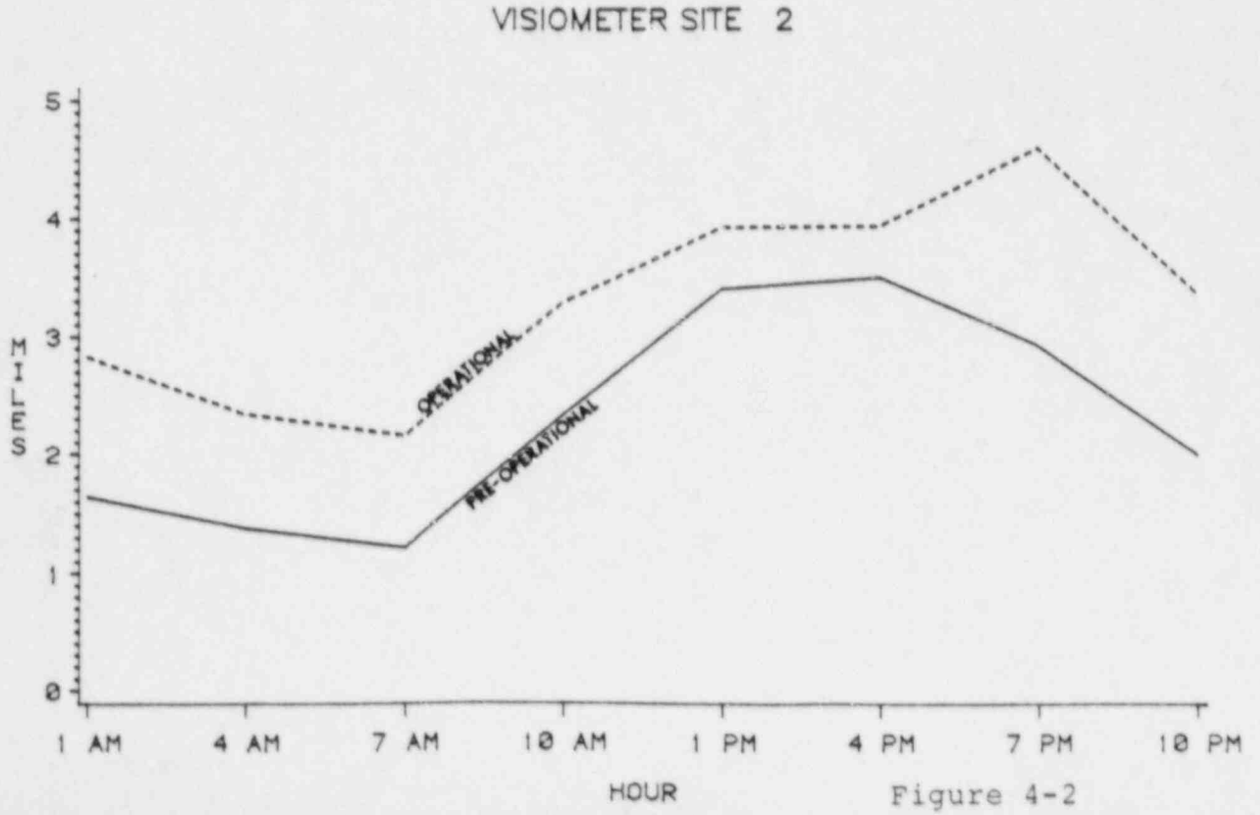
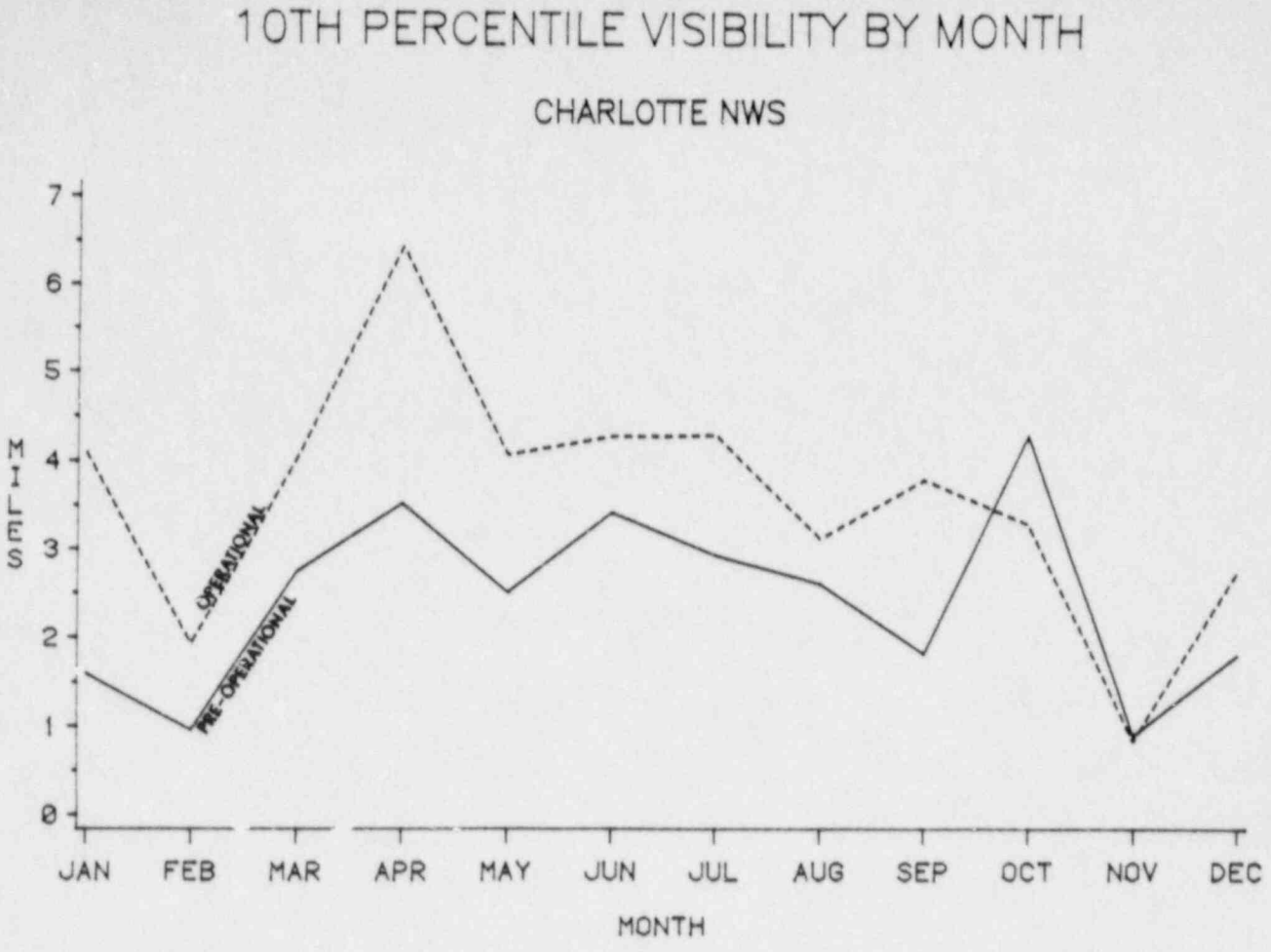


Figure 4-2


10TH PERCENTILE VISIBILITY BY MONTH
CHARLOTTE NWS
MILES
7
6
5
4
3
2
1
0
OPERATIONAL
PRE-OPERATIONAL
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
MONTH

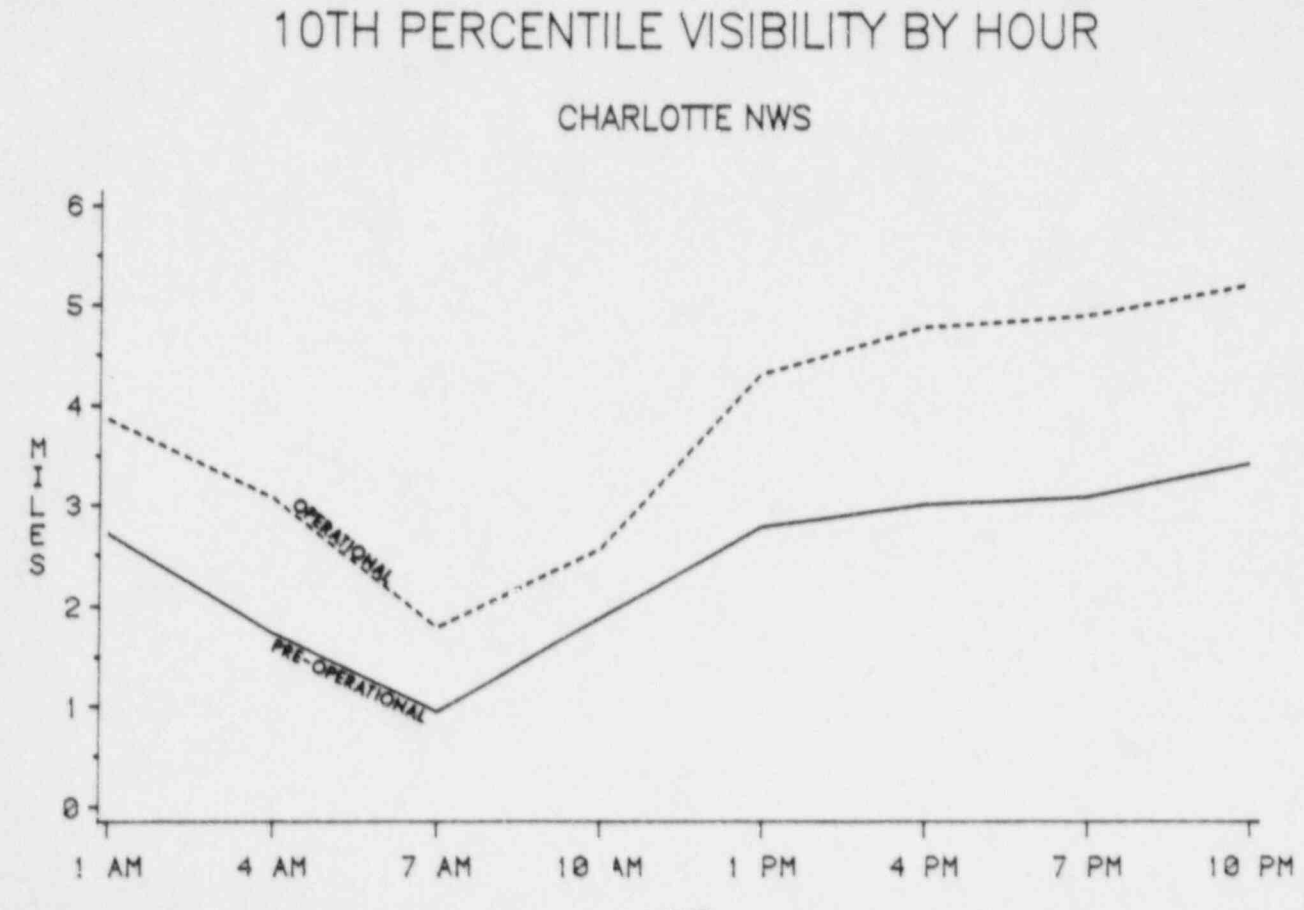
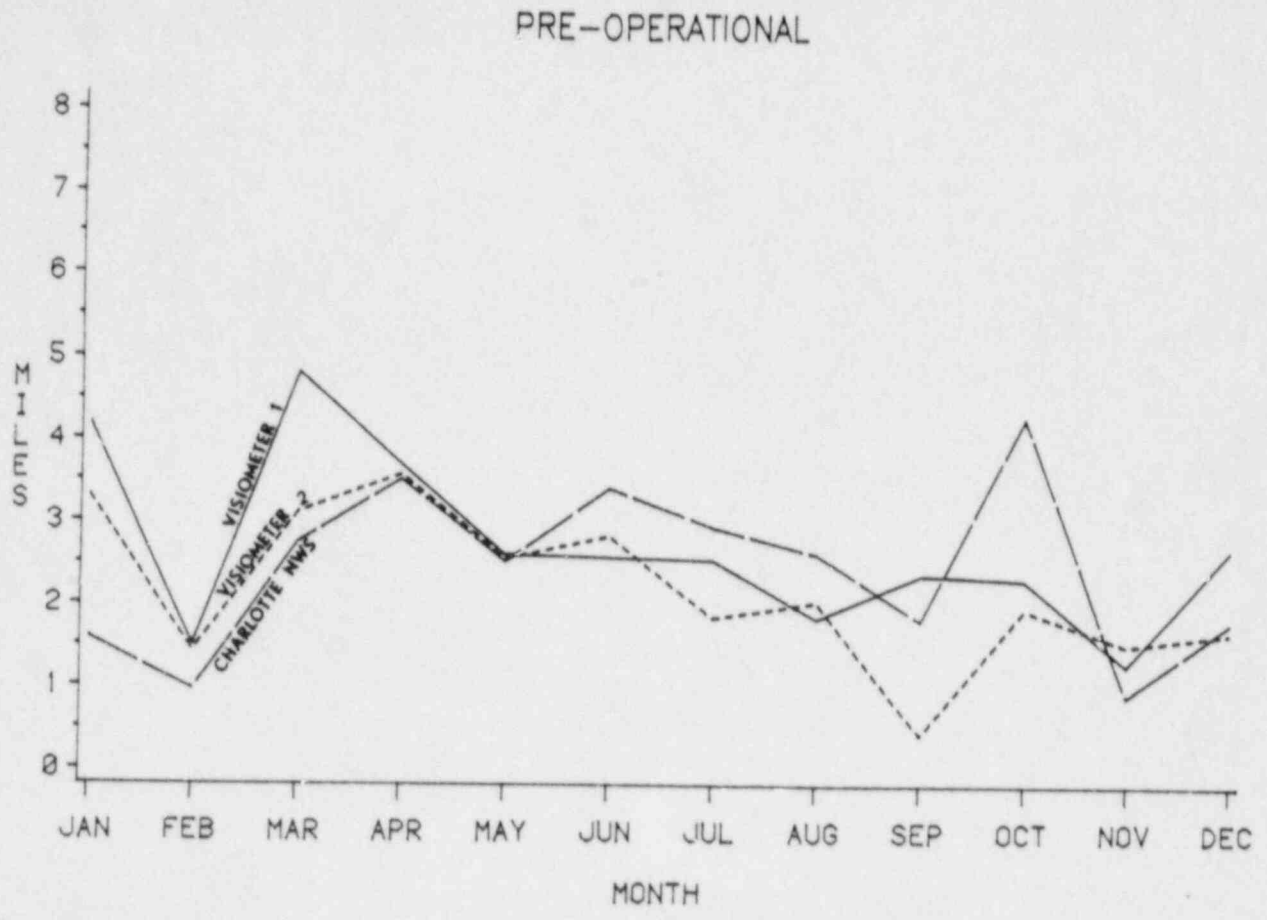

10TH PERCENTILE VISIBILITY BY HOUR
CHARLOTTE NWS
MILES
6
5
4
3
2
1
0
OPERATIONAL
PRE-OPERATIONAL
1 AM
4 AM
7 AM
10 AM
1 PM
4 PM
7 PM
10 PM
HOUR

Figure 4-3

10TH PERCENTILE VISIBILITY BY MONTH



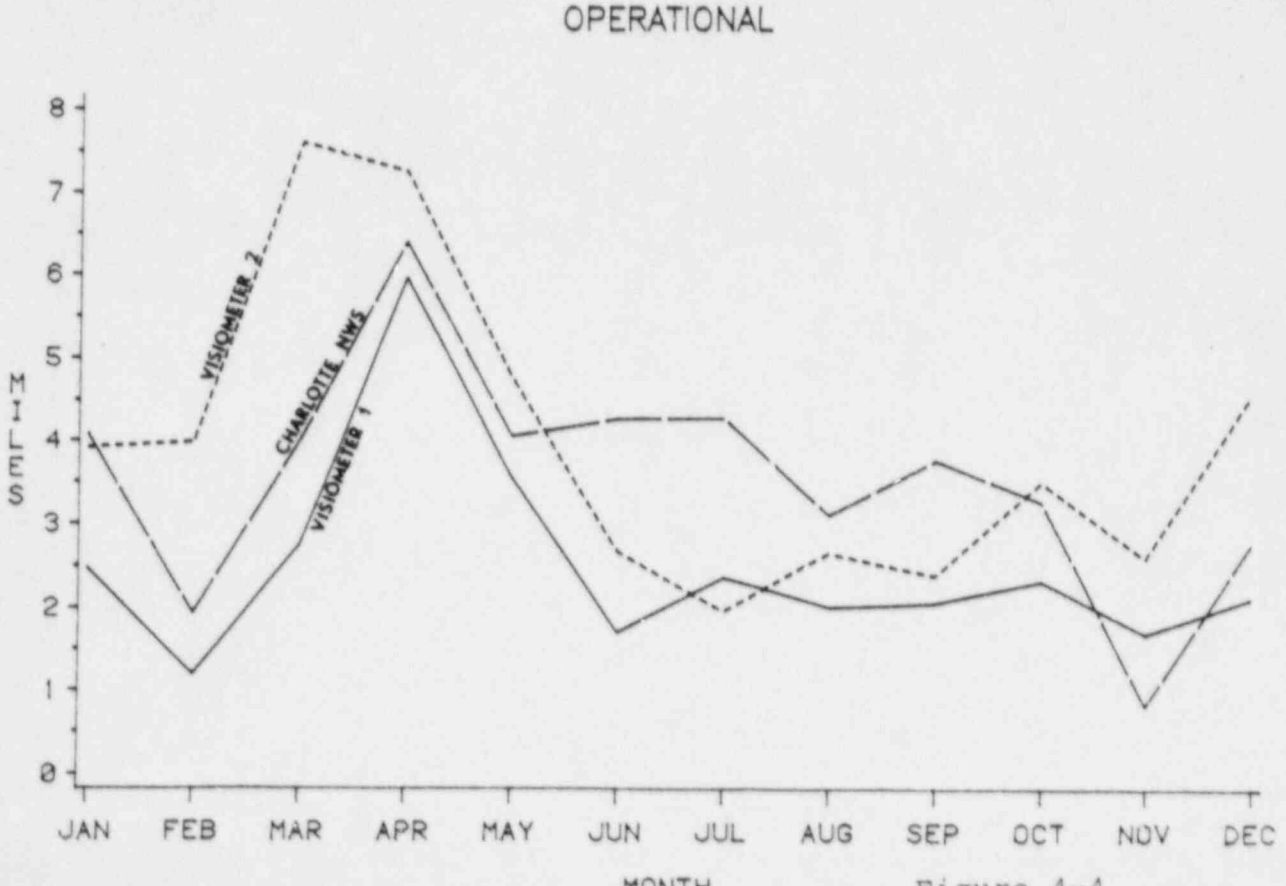
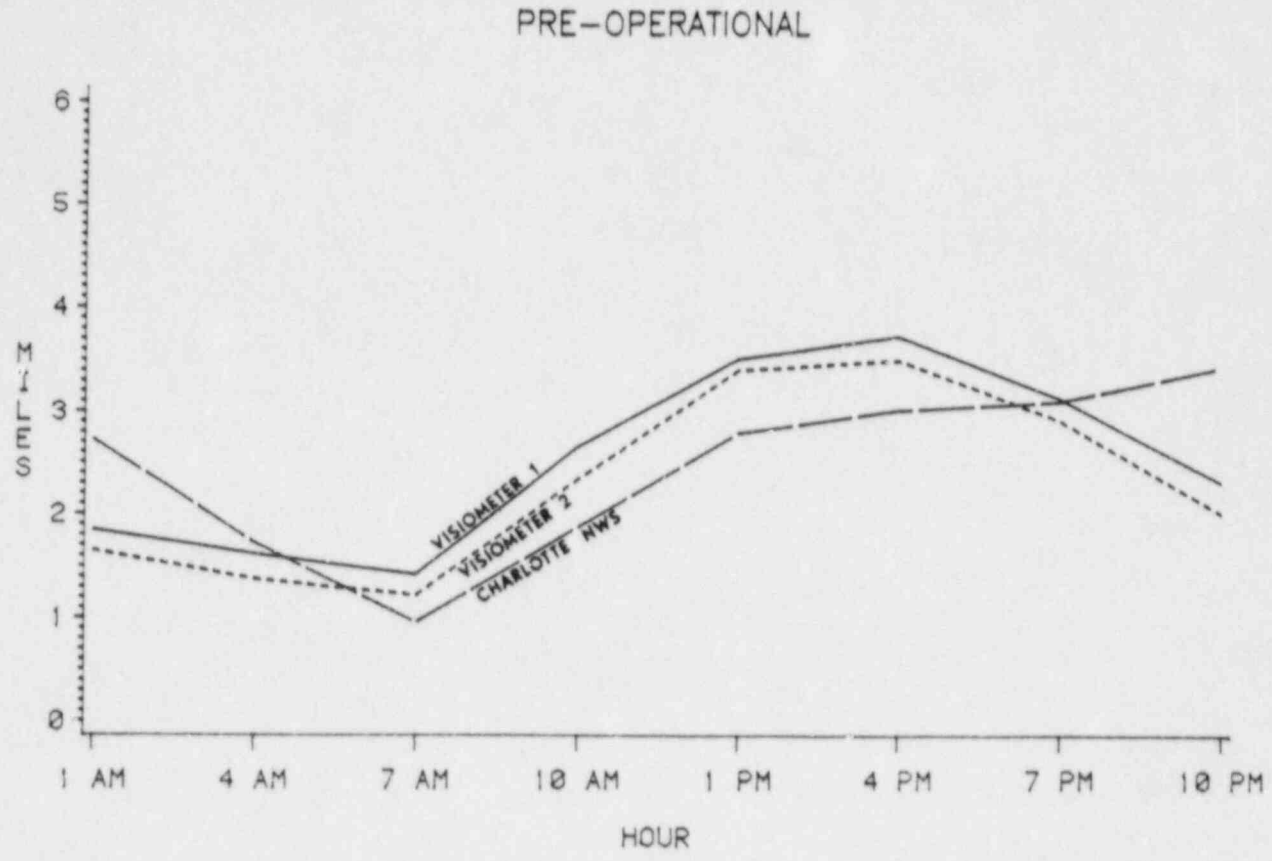


Figure 4-4

10TH PERCENTILE VISIBILITY BY HOUR



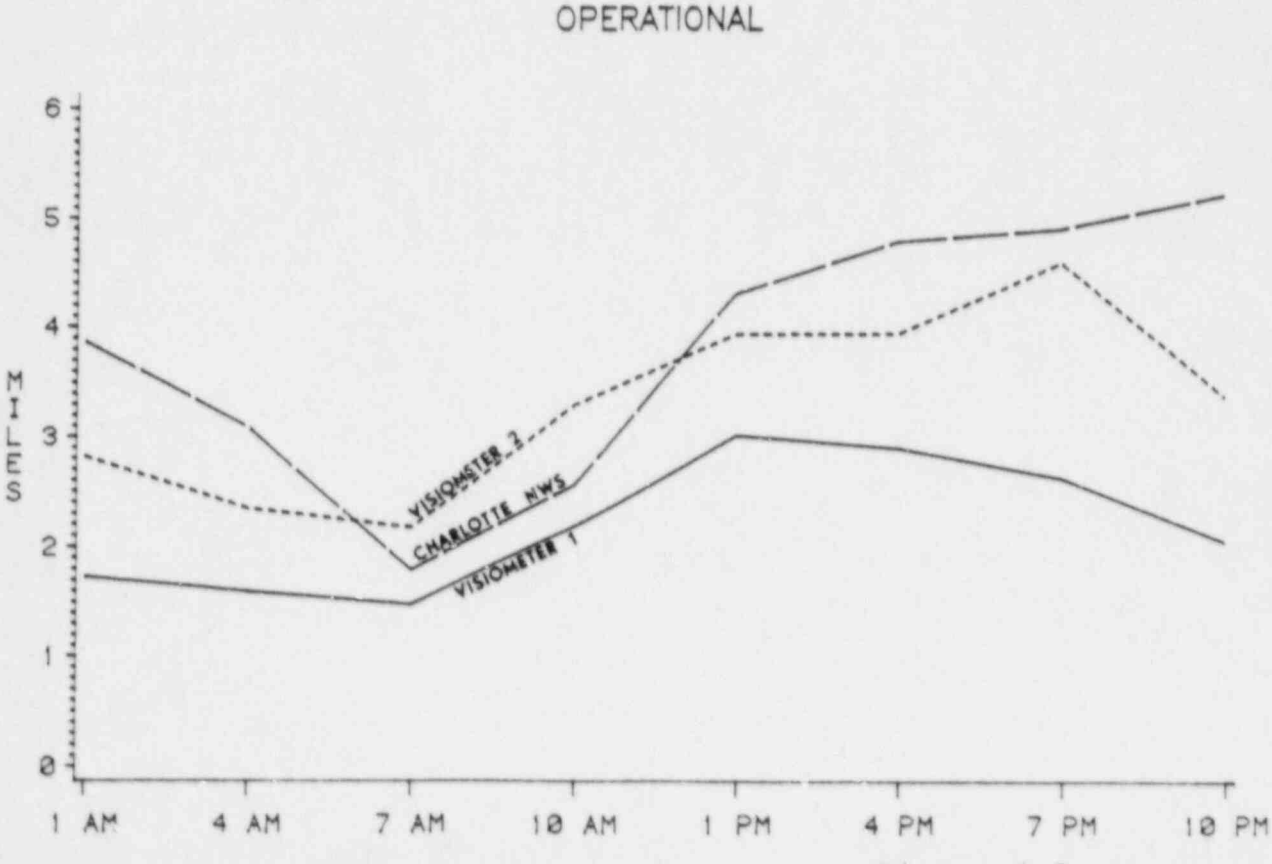
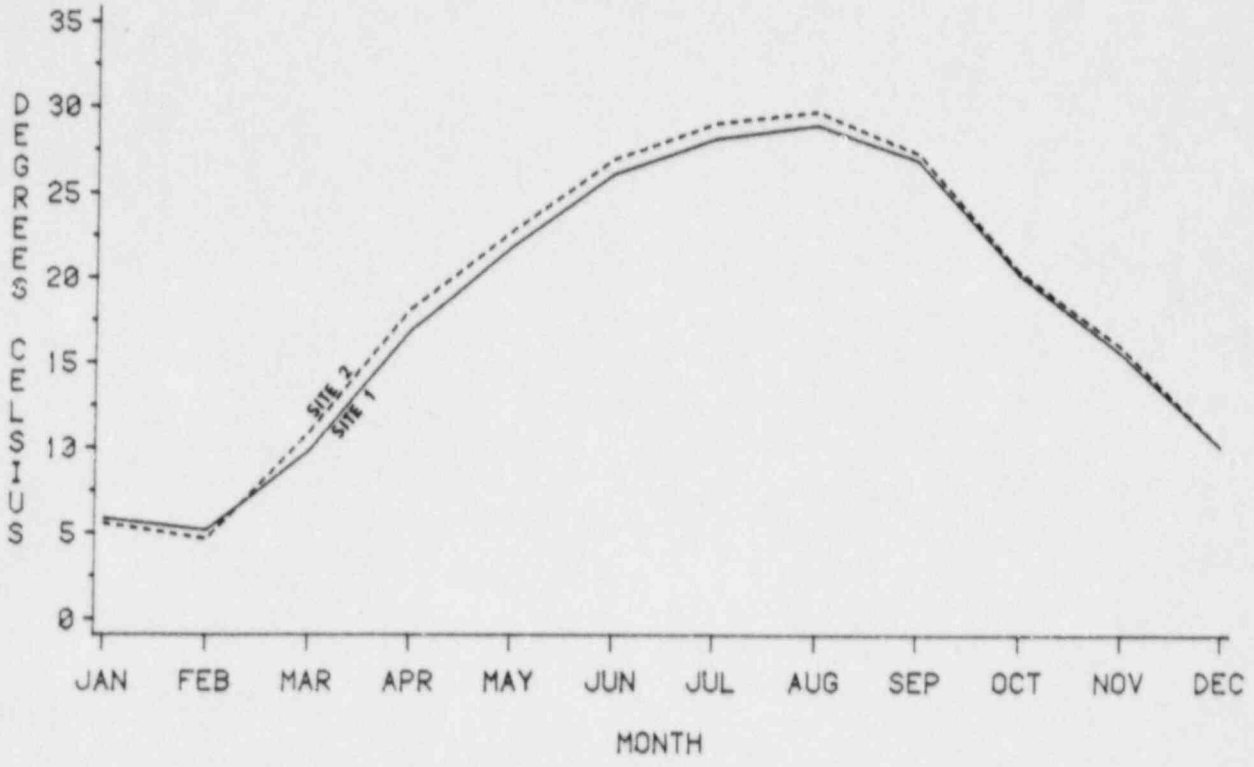


Figure 4-5

AVERAGE MONTHLY SURFACE WATER TEMPERATURES
CATAWBA NUCLEAR STATION

PRE-OPERATIONAL



OPERATIONAL

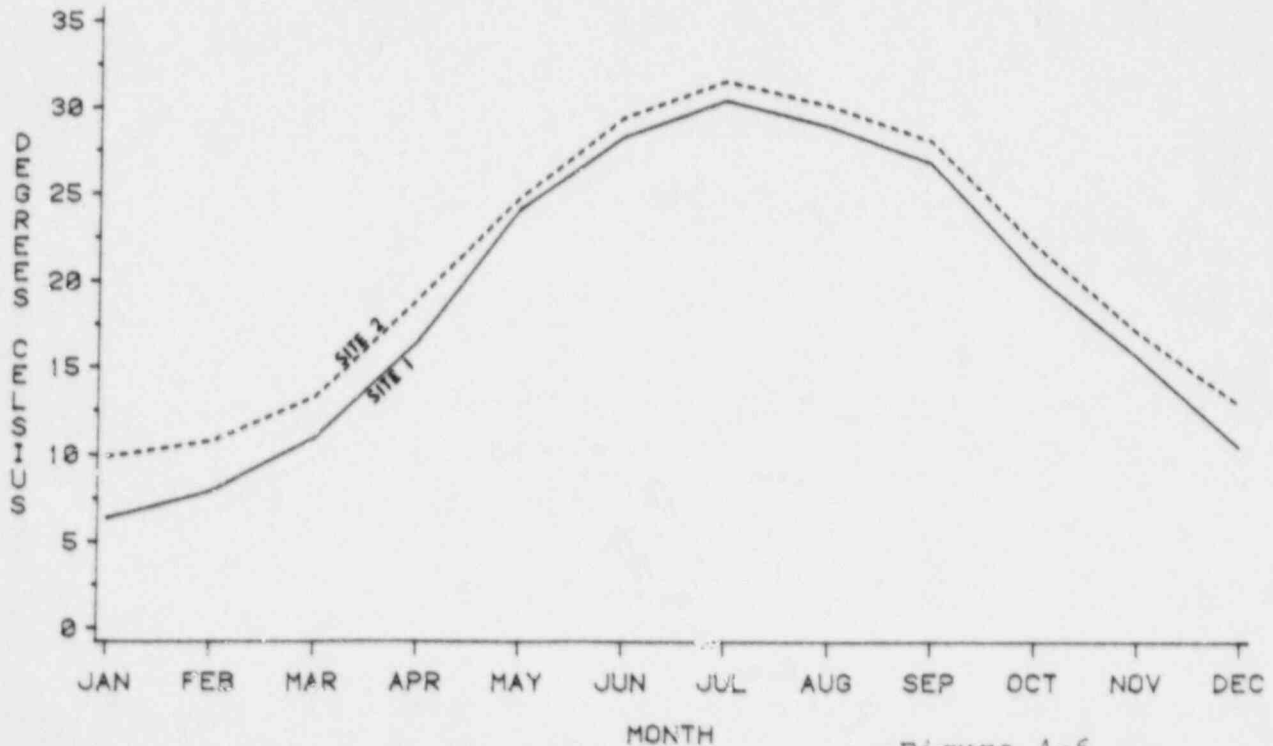
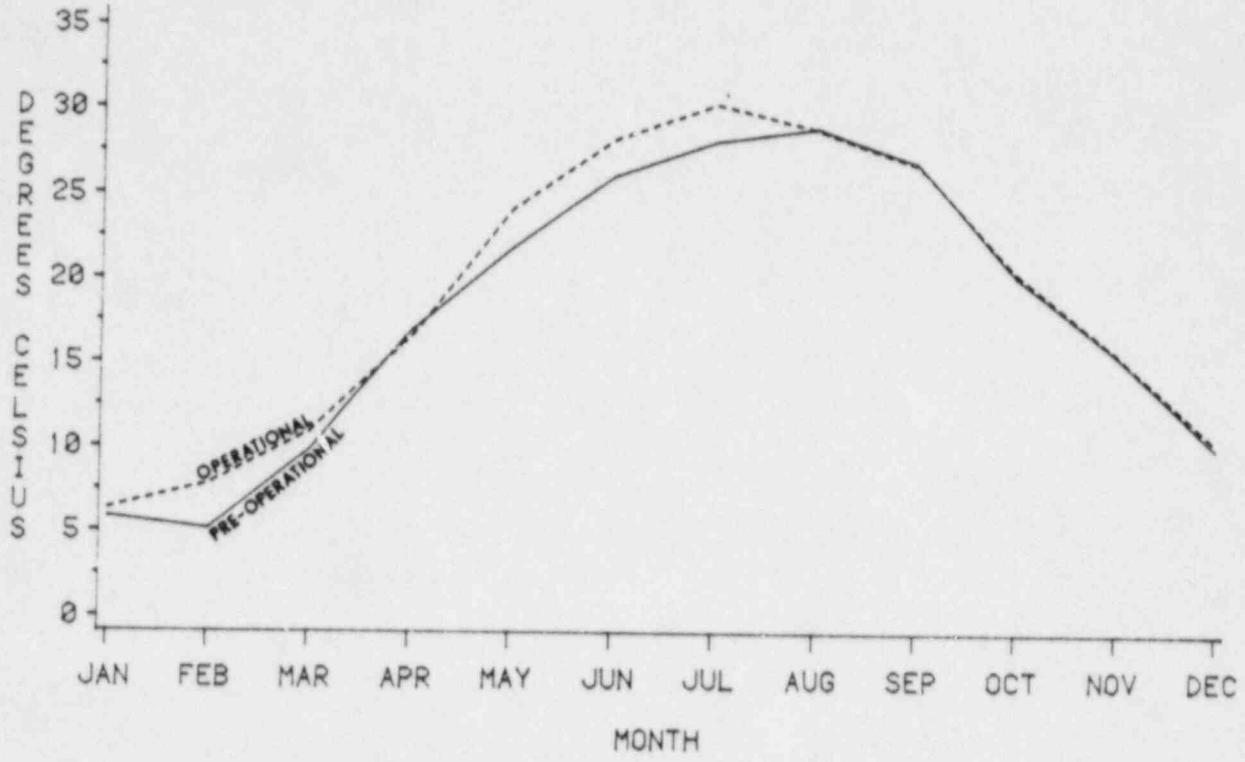


Figure 4-6

AVERAGE MONTHLY SURFACE WATER TEMPERATURES
CATAWBA NUCLEAR STATION

SITE 1 – INTAKE AREA



SITE 2 – DISCHARGE AREA

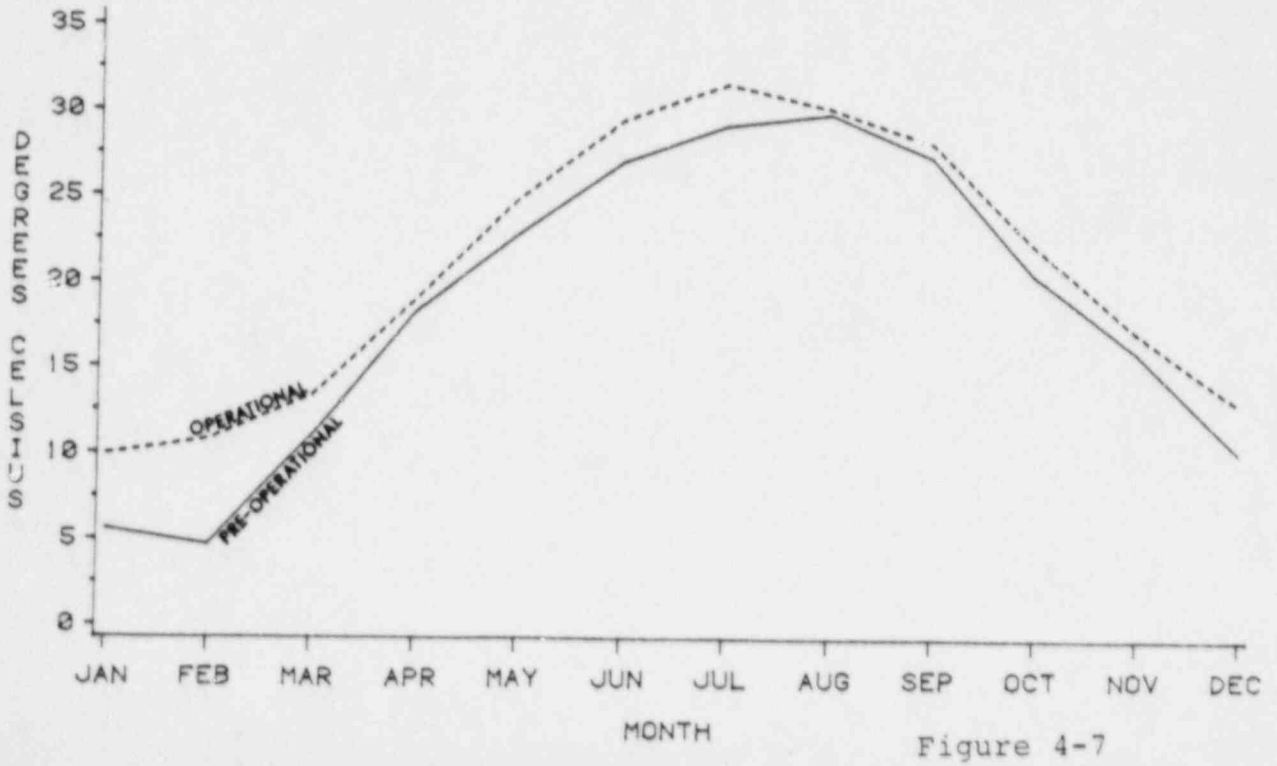


Figure 4-7

5.0 PLUME MODELING - SACTI

5.1 DESCRIPTION OF THE MODEL

A mathematical model for the prediction of Seasonal/Annual Cooling Tower Impacts (SACTI) was acquired from the Electric Power Research Institute (EPRI). This model predicts the physical impacts of cooling tower plumes, including drift, fogging, icing and shadowing. SACTI represents improvements in theory and performance compared to previous models. The model forecasts seasonal as well as annual effects, and considers the impacts local to the towers, covering an area of 5 to 10 kilometer radius. For this study, only fogging and icing are considered.

The model consists of four submodels, the output of one becoming the input for the next. Most earlier models used relatively simple calculations on an hour by hour basis to predict impacts over a season or year. This simplicity was necessary to keep computational requirements within reasonable limits. The SACTI model reduces meteorological data and tower characteristics into representative similar cases so that more reliable and complex plume and drift formulas could be incorporated. The model determines 35 categories of plumes which may be expected and chooses 10 categories of environmental conditions to represent the fogging/icing cases. Fogging is predicted when the visible plume strikes the ground. Icing is assumed to occur when the visible plume strikes the ground under freezing conditions.

The SACTI model allows for the input of any number of identical natural draft or mechanical draft (linear or circular) cooling towers in any geometric orientation.

This is handled with the concept of representative wind directions, another innovation of the SACTI model. Each of the 16 traditional wind directions is modeled as one of 3 to 5 representative directions. In this way complex cooling tower configurations can be handled more easily.

The developers of SACTI calibrated the model with existing field and laboratory data, and have since done extensive validation using more recent field and laboratory research. A much more detailed description of the model can be found in the code manual.[3]

5.2 FOG, DOWNWASH AND RIME ICING PREDICTIONS

The SACTI model was run simulating full operation of all six towers with all fans running. This represents the worst-case scenario. Two years of on-site meteorological data (1976 and 1977) collected at the plant were used by the model.

The model predicts no fogging, downwash or rime icing for the scenario mentioned above. The seasonal and annual model output is contained in the Appendix of this report, which includes graphs predicting plume length frequencies and graphs illustrating no fogging or icing predicted.

5.3 CORRELATION OF SACTI RESULTS WITH OTHER OBSERVATIONS

The results of the SACTI model (no predicted fog or rime icing) are consistent with the other data collected for this study. The visual observations at the highway bridge (Co. Rd. 1132) and Wylie Hydro do not indicate any increase in

the frequency of fogging events since the cooling towers began operation. Visiometer Site 1 monitored essentially the same general visibility for both pre-operational and operational phases of the study while Visiometer Site 2 shows improved general visibility since the cooling towers began operation. The visual observations of the cooling tower plume itself indicate that the wind is strong enough to cause the plume to contact the ground only about 12 percent of the time. When the plume does touch the ground it is always directly adjacent to the cooling towers and within the fenced boundary of the cooling tower yard.

In summary, the SACTI model verifies the conclusions reached in Section 6.0.

6.0 CONCLUSIONS

Various analytical and observational tools were used to assess the impact of cooling tower and plant operation on the fogging climatology in the vicinity of the Catawba Nuclear Station. These tools all point toward the conclusion that the magnitude of cooling tower effects on ground level visibility from condensate material and from the heated water discharge are encompassed within the normal range of climatic variability. If actual effects exist, they are not discernable in comparison to the noise of the natural variability in radiation/frontal fog. Significant conclusions from each method used in analyzing the fogging situation at Catawba are as follows:

- The cooling tower plume questionnaire results show that downwash and icing effects due to the operation of the cooling towers occur exclusively in the cooling tower yard.

- Observations of steam fog events on Lake Wylie by meteorologists verify in a qualitative sense that the cooling towers do not have an observable effect on the frequency or intensity of steam fog.

- Visual observations by trained personnel at Catawba and Wylie Hydro indicate improved visibility during the operational phase of the study. Wylie Hydro has more intense and frequent visibility events than Catawba.

- Statistical significance tests on data obtained from the visiometer measurement program show that cooling tower operation does not

significantly increase the frequency of poor visibility events on an annual basis. Only visiometer 1 (intake area) during summer showed a significant increase in poor visibility events in the seasonal breakdown. Visiometer 2 (discharge area) showed a decrease in poor visibility during the operational phase for all seasons except summer (not significant).

- Modeling the cooling tower operation using the SACTI model for the prediction of seasonal/annual cooling tower impacts shows no fogging downwash or rime icing during two years of representative cooling tower operation.

- Based on observations by meteorologists and the fact that the above analyses show that operation of the cooling towers has no significant effects in the area immediately surrounding the plant, there are no effects due to cooling tower operation at a nearby community (Tega Cay) and at a nearby airport (Rock Hill).

Other studies have reached similar conclusions that the operation of mechanical draft cooling towers does not increase the frequency or duration of fogging events or decrease area visibility in general [1,4]. Cooling tower impacts from downwash fogging and icing are usually limited to an onsite area less than 1 kilometer (0.5 mile) from the towers [4].

Based on the above conclusions, continued monitoring and/or mitigating action to lessen the atmospheric impact of plant operation are not recommended.

7.0 REFERENCES

[1] Ryznar, E. et. al., An Investigation of the Meteorological Impact of Mechanical - Draft Cooling Towers at the Palisades Nuclear Plant, University of Michigan, Final Report, January 1980.

[2] Dixon, W. J. and Massey, F. J., Jr., Introduction to Statistical Analysis, McGraw-Hill, 2nd edition, 1957.

[3] Policastro, A. J., Coke, L. and Wastag, M., User's Manual: Cooling Tower Plume Prediction Code, Argonne National Laboratory, EPRI Report No. EPRI CS-3403-CCM, April 1984.

[4] U.S. Nuclear Regulatory Commission, Final Environmental Statement Related to the Operation of WPPSS Nuclear Project No. 2, Docket No. 50-397, December 1981.

APPENDIX

SACTI MODEL OUTPUT

EPRI PLUME AND DRIFT ANALYSIS SYSTEM PREPROCESSOR CODE
CASE STUDY: CIRCULAR MECHANICAL DRAFT COOLING TOWERS - CATAWBA NUCLEAR STATION

INPUT INFORMATION

TAPE TYPE: NRC	
TOWER TYPE: CIRCULAR MECHANICAL DRAFT	
TOWER HEIGHT (M):	28.00
TOWER DIAMETER (M):	75.40
TOWER HEAT (KW):	0.46E+07
TOWER AIR FLOW (KG/S):	0.58E+05
SITE LATITUDE:	35.05
SITE LONGITUDE:	81.07
SITE TIME ZONE:	5
ROUGHNESS HEIGHT (CM):	5.00
REFERENCE HEIGHT (M):	10.00
MIXING HEIGHT (M):	370.00
RECORD STOPPING SWITCH:	0
RECORD SKIPPING FACTOR:	1
OUTPUT ROUTING SWITCH:	1
MIXING HEIGHT TAPE SWITCH:	1
MIXING HEIGHT TYPE:	1
STABILITY CLASS METHOD:	2
FOGGING/ICING SWITCH:	1
DRIFT SWITCH:	0

MONTHLY CLEARNESS INDEX

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
.520	.540	.550	.600	.580	.590	.590	.590	.580	.600	.550	.510

TOTAL DAILY SOLAR ENERGY DEPOSITION
(LONG-TERM AVERAGE FOR MONTH)

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
9.29	12.39	16.20	21.39	23.07	24.45	23.65	21.69	18.21	14.86	10.51	8.54

NRC TAPE LABEL

CATAWBA NUCLEAR STATION - METEOROLOGICAL DATA

COMPILED DECEMBER 16, 1975 THRU FEBRUARY 13, 1978

THIS DATA CONTAINS UPPER AND LOWER MEASUREMENTS.

NO INTERMEDIATE MEASUREMENTS WERE KEPT.

**********WIND SPEED FREQUENCY TABLE**********

CIRCULAR MECHANICAL DRAFT COOLING TOWERS - CATAWBA NUCLEAR STATION

WIND SPEED RANGE (M/S)			WIND FROM / WIND HEADED																
			N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
			S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	SUM
0	TO	1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1	TO	2	0.015	0.013	0.017	0.011	0.013	0.010	0.014	0.015	0.017	0.021	0.015	0.009	0.010	0.007	0.009	0.009	0.204
2	TO	3	0.016	0.018	0.022	0.010	0.011	0.009	0.012	0.015	0.018	0.039	0.028	0.012	0.012	0.007	0.005	0.007	0.243
3	TO	4	0.013	0.016	0.023	0.009	0.009	0.006	0.008	0.011	0.010	0.035	0.032	0.015	0.012	0.007	0.005	0.006	0.216
4	TO	5	0.010	0.010	0.017	0.005	0.006	0.002	0.004	0.005	0.005	0.025	0.024	0.011	0.009	0.006	0.007	0.007	0.155
5	TO	6	0.007	0.006	0.012	0.002	0.002	0.001	0.001	0.002	0.002	0.014	0.013	0.006	0.006	0.005	0.005	0.004	0.087
6	TO	7	0.004	0.003	0.008	0.001	0.001	0.001	0.001	0.001	0.001	0.005	0.008	0.003	0.002	0.002	0.002	0.003	0.044
7	TO	8	0.002	0.002	0.005	0.001	0.000	0.000	0.000	0.000	0.000	0.003	0.005	0.002	0.001	0.001	0.001	0.002	0.025
8	TO	9	0.001	0.001	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.003	0.001	0.001	0.001	0.001	0.001	0.012
9	TO	10	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.001	0.000	0.007
10	TO	11	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.003
11	TO	12	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.002
12	TO	13	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001
13	TO	14	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.001
14	TO	15	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
15	TO	20	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
20	TO	25	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
25	TO	30	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
30	TO	OVER	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

AVERAGE	3.57039	VARIANCE	3.38349	STD DEV	1.83943
STD ERR	0.01487	SKEWNESS	1.38599	KURTOSIS	2.30242

**********RELATIVE HUMIDITY FREQUENCY TABLE**********

CIRCULAR MECHANICAL DRAFT COOLING TOWERS - CATAWBA NUCLEAR STATION

RELATIVE HUMIDITY RANGE(%)	WIND FROM N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
	WIND HEADED S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	SUM
0 TO 10	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
10 TO 20	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.000	0.001	0.001	0.001	0.001	0.006
20 TO 30	0.003	0.002	0.003	0.002	0.001	0.001	0.002	0.002	0.002	0.005	0.005	0.003	0.004	0.005	0.003	0.002	0.045
30 TO 40	0.005	0.005	0.006	0.002	0.003	0.002	0.004	0.003	0.003	0.012	0.016	0.008	0.007	0.006	0.006	0.005	0.094
40 TO 50	0.008	0.006	0.011	0.005	0.004	0.003	0.005	0.005	0.006	0.015	0.015	0.006	0.006	0.005	0.006	0.007	0.113
50 TO 60	0.008	0.010	0.014	0.005	0.006	0.003	0.005	0.005	0.005	0.016	0.017	0.007	0.007	0.004	0.005	0.005	0.122
60 TO 70	0.008	0.009	0.014	0.006	0.005	0.003	0.005	0.006	0.006	0.017	0.015	0.007	0.006	0.003	0.004	0.004	0.118
70 TO 80	0.009	0.010	0.015	0.005	0.005	0.005	0.005	0.008	0.007	0.018	0.018	0.008	0.006	0.004	0.004	0.004	0.130
80 TO 90	0.011	0.011	0.015	0.007	0.006	0.003	0.005	0.009	0.009	0.027	0.018	0.009	0.006	0.003	0.004	0.004	0.148
90 TO 100	0.011	0.014	0.023	0.007	0.009	0.007	0.008	0.011	0.013	0.029	0.021	0.009	0.007	0.004	0.003	0.005	0.180
100 TO OVER	0.005	0.004	0.006	0.002	0.002	0.001	0.002	0.001	0.002	0.005	0.005	0.002	0.003	0.001	0.001	0.001	0.044

AVERAGE	68.07166	VARIANCE	523.64722	STD DEV	22.88335
STD ERR	0.18502	SKEWNESS	1.13231	KURTOSIS	1.34426

DEW POINT TEMPERATURE FREQUENCY TABLE

CIRCULAR MECHANICAL DRAFT COOLING TOWERS - CATAWBA NUCLEAR STATION

DEW POINT TEMP RANGE (C)	WIND FROM / WIND HEADED	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	SUM
-45 TO -40	S	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
-40 TO -35	SSW	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
-35 TO -30	SW	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
-30 TO -25	WSW	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
-25 TO -20	W	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001
-20 TO -15	WNW	0.002	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.002	0.003	0.003	0.002	0.015
-15 TO -10	NW	0.005	0.001	0.003	0.001	0.001	0.001	0.001	0.001	0.001	0.003	0.004	0.003	0.004	0.004	0.005	0.005	0.043
-10 TO -5	NNW	0.008	0.006	0.008	0.003	0.002	0.002	0.002	0.003	0.004	0.008	0.010	0.005	0.006	0.006	0.005	0.005	0.083
-5 TO 0	N	0.008	0.010	0.014	0.004	0.004	0.002	0.003	0.003	0.005	0.012	0.011	0.006	0.007	0.005	0.004	0.005	0.102
0 TO 5	NNE	0.010	0.010	0.016	0.004	0.004	0.003	0.003	0.004	0.005	0.017	0.018	0.009	0.007	0.004	0.005	0.005	0.125
5 TO 10	NE	0.011	0.011	0.016	0.006	0.004	0.002	0.005	0.004	0.005	0.017	0.018	0.009	0.006	0.003	0.004	0.005	0.126
10 TO 15	ENE	0.009	0.010	0.020	0.007	0.007	0.004	0.006	0.007	0.009	0.024	0.020	0.007	0.005	0.003	0.004	0.004	0.145
15 TO 20	E	0.009	0.015	0.024	0.011	0.015	0.010	0.013	0.018	0.015	0.033	0.028	0.012	0.010	0.006	0.004	0.004	0.227
20 TO 25	ESE	0.006	0.006	0.006	0.004	0.005	0.004	0.007	0.010	0.010	0.030	0.023	0.009	0.006	0.002	0.002	0.003	0.132
25 TO 30	SE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
30 TO 35	SSE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
35 TO 40	SUM	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
40 TO 45		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
45 TO OVER		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

AVERAGE	8.32923	VARIANCE	114.82434	STD DEV	10.71561
STD ERR	0.08664	SKEWNESS	1.14143	KURTOSIS	1.83036

**********DRY BULB TEMPERATURE FREQUENCY TABLE**********

CIRCULAR MECHANICAL DRAFT COOLING TOWERS - CATAWBA NUCLEAR STATION

DRY BULB TEMP RANGE (C)	WIND FROM: N	NNE	NE	ENE	E	ESE	SE	SSE	WIND HEADED: S	SSW	SW	WSW	W	WNW	NW	NNW	SUM
-45 TO -40	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
-40 TO -35	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
-35 TO -30	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
-30 TO -25	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
-25 TO -20	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
-20 TO -15	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001
-15 TO -10	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.001	0.003
-10 TO -5	0.002	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.002	0.001	0.002	0.002	0.003	0.002	0.017
-5 TO 0	0.007	0.005	0.009	0.003	0.002	0.002	0.001	0.002	0.002	0.004	0.005	0.004	0.004	0.003	0.003	0.005	0.065
0 TO 5	0.009	0.009	0.015	0.004	0.003	0.002	0.003	0.004	0.006	0.008	0.012	0.007	0.009	0.008	0.006	0.005	0.111
5 TO 10	0.012	0.011	0.017	0.005	0.003	0.003	0.003	0.003	0.006	0.014	0.015	0.008	0.007	0.005	0.006	0.006	0.125
10 TO 15	0.009	0.008	0.015	0.005	0.005	0.003	0.005	0.005	0.005	0.019	0.017	0.008	0.005	0.004	0.005	0.005	0.122
15 TO 20	0.012	0.014	0.021	0.006	0.009	0.006	0.009	0.009	0.011	0.033	0.025	0.009	0.007	0.004	0.005	0.007	0.186
20 TO 25	0.009	0.012	0.019	0.011	0.011	0.006	0.009	0.014	0.013	0.039	0.029	0.010	0.009	0.006	0.005	0.005	0.208
25 TO 30	0.005	0.007	0.009	0.005	0.006	0.005	0.007	0.009	0.007	0.017	0.018	0.008	0.006	0.003	0.003	0.002	0.117
30 TO 35	0.001	0.002	0.002	0.001	0.001	0.002	0.003	0.003	0.003	0.008	0.009	0.003	0.002	0.001	0.001	0.001	0.042
35 TO 40	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.002
40 TO 45	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
45 TO OVER	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

AVERAGE	15.00765	VARIANCE	102.37660	STD DEV	10.11813
STD ERR	0.08181	SKEWNESS	1.28937	KURTOSIS	1.79812

**********STABILITY CLASS FREQUENCY TABLE**********

CIRCULAR MECHANICAL DRAFT COOLING TOWERS - CATAWBA NUCLEAR STATION

STABILITY CLASS	WIND FROM: N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
	WIND HEADED: S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	SUM
1		0.004	0.008	0.010	0.004	0.004	0.005	0.009	0.010	0.007	0.018	0.025	0.010	0.009	0.005	0.004	0.003	0.133
2		0.002	0.003	0.005	0.003	0.002	0.001	0.002	0.002	0.002	0.005	0.008	0.003	0.002	0.002	0.002	0.001	0.044
3		0.002	0.002	0.004	0.002	0.002	0.001	0.001	0.001	0.001	0.005	0.005	0.002	0.001	0.001	0.001	0.001	0.032
4		0.021	0.024	0.046	0.015	0.014	0.008	0.011	0.012	0.013	0.043	0.035	0.013	0.011	0.007	0.009	0.011	0.292
5		0.024	0.018	0.029	0.010	0.012	0.008	0.009	0.013	0.016	0.047	0.036	0.017	0.015	0.010	0.012	0.014	0.291
6		0.007	0.008	0.007	0.003	0.003	0.002	0.003	0.005	0.005	0.012	0.011	0.007	0.006	0.006	0.004	0.003	0.091
7		0.009	0.007	0.007	0.003	0.003	0.004	0.005	0.007	0.010	0.015	0.013	0.009	0.009	0.006	0.006	0.005	0.117

AVERAGE	4.30548	VARIANCE	3.01320	STD DEV	1.73586
STD ERR	0.01403	SKEWNESS	1.16098	KURTOSIS	1.41765

K FREQUENCY TABLE

CIRCULAR MECHANICAL DRAFT COOLING TOWERS - CATAWBA NUCLEAR STATION

K (UA/VE) RANGE		WIND FROM N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	SUM
		WIND HEADED S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	
0.0	TO 0.1	0.004	0.002	0.003	0.003	0.004	0.004	0.003	0.002	0.004	0.003	0.003	0.003	0.003	0.002	0.003	0.002	0.048
0.1	TO 0.2	0.009	0.010	0.011	0.006	0.006	0.004	0.009	0.010	0.011	0.015	0.011	0.004	0.005	0.003	0.004	0.005	0.123
0.2	TO 0.3	0.010	0.014	0.017	0.007	0.006	0.005	0.009	0.009	0.011	0.027	0.017	0.006	0.006	0.003	0.005	0.005	0.156
0.3	TO 0.4	0.012	0.014	0.021	0.008	0.008	0.006	0.007	0.009	0.009	0.029	0.022	0.009	0.008	0.005	0.004	0.006	0.176
0.4	TO 0.5	0.011	0.014	0.019	0.006	0.007	0.004	0.006	0.009	0.008	0.028	0.023	0.009	0.007	0.005	0.004	0.005	0.167
0.5	TO 0.6	0.010	0.008	0.014	0.005	0.005	0.003	0.004	0.004	0.006	0.022	0.017	0.010	0.007	0.004	0.004	0.005	0.126
0.6	TO 0.7	0.006	0.004	0.011	0.002	0.003	0.001	0.002	0.003	0.002	0.011	0.015	0.006	0.006	0.004	0.005	0.005	0.086
0.7	TO 0.8	0.003	0.002	0.007	0.002	0.001	0.001	0.001	0.002	0.001	0.005	0.009	0.005	0.005	0.003	0.004	0.003	0.054
0.8	TO 0.9	0.001	0.001	0.002	0.000	0.000	0.001	0.001	0.001	0.001	0.003	0.005	0.003	0.003	0.002	0.002	0.002	0.028
0.9	TO 1.0	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.003	0.002	0.001	0.001	0.001	0.000	0.014
1.0	TO 1.2	0.000	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.003	0.002	0.001	0.002	0.001	0.000	0.012
1.2	TO 1.4	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.001	0.001	0.001	0.001	0.000	0.006
1.4	TO 1.6	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.002
1.6	TO 1.8	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001
1.8	TO 2.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001
2.0	TO 2.5	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2.5	TO 3.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
3.0	TO OVER	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

AVERAGE	0.42683	VARIANCE	0.05884	STD DEV	0.24257
STD ERR	0.00196	SKEWNESS	1.43202	KURTOSIS	2.51960

**********VSTAR FREQUENCY TABLE**********

CIRCULAR MECHANICAL DRAFT COOLING TOWERS - CATAWBA NUCLEAR STATION

**********WIND FROM**********

VSTAR RANGE			N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
			**********WIND HEADED**********																
			S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	SUM
0	TO	1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1	TO	2	0.016	0.023	0.030	0.014	0.016	0.012	0.018	0.021	0.019	0.055	0.058	0.023	0.020	0.012	0.012	0.011	0.358
2	TO	3	0.007	0.006	0.011	0.004	0.003	0.002	0.003	0.005	0.006	0.018	0.015	0.005	0.005	0.004	0.004	0.004	0.100
3	TO	4	0.006	0.005	0.008	0.004	0.003	0.002	0.002	0.004	0.004	0.011	0.007	0.004	0.004	0.003	0.004	0.003	0.075
4	TO	5	0.005	0.004	0.007	0.002	0.003	0.001	0.002	0.003	0.003	0.009	0.007	0.004	0.003	0.002	0.003	0.003	0.060
5	TO	6	0.005	0.003	0.004	0.002	0.002	0.001	0.002	0.002	0.002	0.005	0.005	0.002	0.002	0.002	0.002	0.003	0.044
6	TO	7	0.003	0.003	0.005	0.001	0.001	0.001	0.002	0.002	0.003	0.006	0.005	0.002	0.003	0.002	0.002	0.002	0.043
7	TO	8	0.002	0.003	0.003	0.001	0.001	0.001	0.001	0.001	0.002	0.004	0.003	0.002	0.002	0.001	0.001	0.002	0.028
8	TO	9	0.002	0.003	0.003	0.001	0.001	0.001	0.001	0.002	0.002	0.004	0.003	0.001	0.001	0.001	0.001	0.001	0.028
9	TO	10	0.001	0.001	0.003	0.001	0.001	0.001	0.001	0.001	0.001	0.003	0.002	0.001	0.001	0.001	0.001	0.001	0.019
10	TO	11	0.002	0.001	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.003	0.002	0.001	0.001	0.001	0.001	0.001	0.019
11	TO	12	0.001	0.001	0.001	0.001	0.001	0.000	0.001	0.001	0.001	0.002	0.002	0.001	0.001	0.001	0.000	0.001	0.014
12	TO	13	0.001	0.000	0.001	0.000	0.000	0.000	0.000	0.001	0.001	0.001	0.001	0.001	0.000	0.001	0.001	0.001	0.010
13	TO	14	0.001	0.001	0.002	0.000	0.000	0.001	0.001	0.000	0.001	0.002	0.001	0.001	0.001	0.000	0.001	0.000	0.015
14	TO	15	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.001	0.000	0.001	0.000	0.000	0.000	0.008
15	TO	20	0.003	0.002	0.004	0.001	0.002	0.001	0.001	0.001	0.002	0.004	0.004	0.002	0.002	0.001	0.001	0.001	0.033
20	TO	25	0.002	0.002	0.003	0.000	0.001	0.001	0.001	0.001	0.001	0.002	0.003	0.002	0.001	0.001	0.001	0.001	0.022
25	TO	30	0.001	0.001	0.002	0.001	0.001	0.000	0.000	0.001	0.001	0.002	0.002	0.001	0.001	0.000	0.001	0.001	0.015
30	TO	OVER	0.009	0.011	0.017	0.004	0.005	0.003	0.005	0.004	0.006	0.011	0.012	0.006	0.006	0.003	0.003	0.003	0.108

AVERAGE	8.55692	VARIANCE	114.07324	STD DEV	10.68051	
STD ERR	0.08636	SKEWNESS	2.17788	KURTOSIS	5.18445	

PLUME LENGTH PARAMETER FREQUENCY TABLE

CIRCULAR MECHANICAL DRAFT COOLING TOWERS - CATAWBA NUCLEAR STATION

PLUME LENGTH RANGE (M)	WIND FROM N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
	WIND HEADED S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	SUM
0.0 TO 0.2	0.011	0.016	0.020	0.010	0.012	0.009	0.015	0.016	0.014	0.040	0.041	0.018	0.015	0.008	0.008	0.007	0.260
0.2 TO 0.4	0.002	0.003	0.004	0.002	0.002	0.002	0.002	0.002	0.002	0.005	0.005	0.002	0.002	0.001	0.001	0.001	0.038
0.4 TO 0.6	0.002	0.002	0.003	0.001	0.002	0.001	0.001	0.002	0.002	0.005	0.004	0.001	0.001	0.001	0.001	0.001	0.033
0.6 TO 0.8	0.002	0.002	0.003	0.002	0.001	0.001	0.001	0.001	0.002	0.005	0.004	0.001	0.001	0.002	0.001	0.002	0.031
0.8 TO 1.0	0.001	0.002	0.002	0.001	0.001	0.001	0.001	0.002	0.001	0.005	0.004	0.001	0.002	0.001	0.001	0.001	0.027
1.0 TO 1.2	0.002	0.001	0.003	0.001	0.001	0.000	0.001	0.001	0.001	0.004	0.003	0.002	0.001	0.001	0.001	0.001	0.024
1.2 TO 1.4	0.002	0.002	0.002	0.001	0.001	0.000	0.001	0.001	0.002	0.003	0.003	0.001	0.001	0.001	0.001	0.001	0.023
1.4 TO 1.6	0.001	0.001	0.002	0.001	0.001	0.001	0.000	0.001	0.001	0.003	0.003	0.001	0.001	0.000	0.001	0.001	0.020
1.6 TO 1.8	0.001	0.001	0.002	0.001	0.001	0.000	0.001	0.001	0.001	0.003	0.003	0.001	0.001	0.001	0.001	0.001	0.021
1.8 TO 2.0	0.001	0.001	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.003	0.002	0.001	0.001	0.001	0.001	0.000	0.018
2.0 TO 2.2	0.002	0.001	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.003	0.002	0.001	0.000	0.001	0.001	0.001	0.018
2.2 TO 2.4	0.002	0.002	0.002	0.001	0.001	0.000	0.000	0.000	0.001	0.003	0.002	0.000	0.001	0.001	0.001	0.001	0.017
2.4 TO 2.6	0.001	0.001	0.002	0.001	0.001	0.001	0.000	0.001	0.001	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.017
2.6 TO 2.8	0.001	0.001	0.002	0.001	0.001	0.000	0.000	0.001	0.001	0.002	0.002	0.001	0.000	0.001	0.001	0.001	0.015
2.8 TO 3.0	0.001	0.001	0.002	0.001	0.001	0.000	0.000	0.001	0.001	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.017
3.0 TO 3.2	0.001	0.001	0.002	0.001	0.001	0.000	0.001	0.001	0.001	0.002	0.002	0.000	0.001	0.000	0.001	0.001	0.015
3.2 TO 3.4	0.002	0.001	0.002	0.001	0.000	0.000	0.000	0.000	0.001	0.002	0.001	0.001	0.000	0.000	0.001	0.000	0.012
3.4 TO 3.6	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.001	0.001	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.015
3.6 TO 3.8	0.001	0.001	0.001	0.000	0.000	0.000	0.001	0.000	0.000	0.002	0.001	0.001	0.001	0.000	0.000	0.001	0.012
3.8 TO 4.0	0.001	0.001	0.001	0.000	0.001	0.000	0.001	0.001	0.000	0.001	0.002	0.000	0.001	0.001	0.001	0.001	0.013
4.0 TO 4.2	0.001	0.001	0.001	0.000	0.000	0.001	0.000	0.001	0.001	0.002	0.001	0.001	0.001	0.000	0.001	0.001	0.012
4.2 TO 4.4	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.001	0.002	0.001	0.000	0.001	0.001	0.000	0.001	0.010
4.4 TO 4.6	0.000	0.001	0.001	0.000	0.001	0.000	0.001	0.000	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.001	0.010
4.6 TO 4.8	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.000	0.001	0.000	0.000	0.001	0.009
4.8 TO 5.0	0.001	0.000	0.001	0.000	0.000	0.000	0.000	0.001	0.000	0.001	0.001	0.001	0.001	0.000	0.001	0.000	0.009
5.0 TO 5.2	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.001	0.001	0.002	0.001	0.000	0.000	0.001	0.000	0.009
5.2 TO 5.4	0.001	0.000	0.002	0.001	0.000	0.000	0.000	0.000	0.000	0.002	0.001	0.001	0.000	0.000	0.000	0.000	0.009
5.4 TO 5.6	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.001	0.001	0.002	0.001	0.000	0.000	0.000	0.000	0.000	0.009
5.6 TO 5.8	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.001	0.000	0.001	0.001	0.001	0.000	0.001	0.000	0.000	0.008
5.8 TO 6.0	0.001	0.000	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.000	0.001	0.000	0.000	0.000	0.006
6.0 TO 6.2	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.008
6.2 TO 6.4	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.000	0.000	0.000	0.000	0.001	0.005
6.4 TO 6.6	0.001	0.000	0.001	0.000	0.000	0.000	0.000	0.001	0.000	0.001	0.000	0.001	0.000	0.000	0.001	0.000	0.008
6.6 TO 6.8	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.000	0.000	0.000	0.000	0.001	0.006
6.8 TO 7.0	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.005
7.0 TO 7.2	0.000	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.007
7.2 TO 7.4	0.001	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.005
7.4 TO 7.6	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.001	0.000	0.000	0.000	0.005
7.6 TO 7.8	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.005
7.8 TO 8.0	0.001	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.004
8.0 TO 8.2	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.005
8.2 TO 8.4	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.003
8.4 TO 8.6	0.000	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.004
8.6 TO 8.8	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.004
8.8 TO 9.0	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.004
9.0 TO 9.2	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003
9.2 TO 9.4	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.004
9.4 TO 9.6	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003
9.6 TO 9.8	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003
9.8 TO 10.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.004

**********PLUME LENGTH PARAMETER FREQUENCY TABLE**********

CIRCULAR MECHANICAL DRAFT COOLING TOWERS - CATAWBA NUCLEAR STATION

PLUME LENGTH RANGE (M)	WIND FROM / WIND HEADED																
	N / S	NNE / SSW	NE / SW	ENE / WSW	E / W	ESE / WNW	SE / NW	SSE / NNW	S / N	SSW / NNE	SW / NE	WSW / ENE	W / E	WNW / ESE	NW / SE	NNW / SSE	SUM
10.0 TO 10.4	0.000	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.006
10.4 TO 10.8	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.005
10.8 TO 11.2	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.005
11.2 TO 11.6	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.006
11.6 TO 12.0	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.004
12.0 TO 12.4	0.001	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.005
12.4 TO 12.8	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.004
12.8 TO 13.2	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.003
13.2 TO 13.6	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.004
13.6 TO 14.0	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.004
14.0 TO 14.4	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.003
14.4 TO 14.8	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.003
14.8 TO 15.2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.003
15.2 TO 15.6	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.003
15.6 TO 16.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002
16.0 TO 16.4	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002
16.4 TO 16.8	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002
16.8 TO 17.2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002
17.2 TO 17.6	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002
17.6 TO 18.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002
18.0 TO 18.4	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001
18.4 TO 18.8	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002
18.8 TO 19.2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002
19.2 TO 19.6	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001
19.6 TO 20.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002
20.0 TO 21.0	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.004
21.0 TO 22.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.003
22.0 TO 23.0	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.004
23.0 TO 24.0	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003
24.0 TO 25.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003
25.0 TO 26.0	0.000	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.004
26.0 TO 27.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003
27.0 TO 28.0	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.004
28.0 TO 29.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002
29.0 TO 30.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001
30.0 TO 31.0	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.003
31.0 TO 32.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001
32.0 TO 33.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001
33.0 TO 34.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001
34.0 TO 35.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001
35.0 TO 36.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002
36.0 TO 37.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001
37.0 TO 38.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001
38.0 TO 39.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001
39.0 TO 40.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001
40.0 TO OVER	0.005	0.005	0.009	0.002	0.002	0.001	0.002	0.002	0.003	0.005	0.007	0.003	0.003	0.001	0.001	0.001	0.052

AVERAGE	5.39873	VARIANCE	61.60803	STD DEV	7.84908
STD ERR	0.06346	SKEWNESS	2.42414	KURTOSIS	6.66566

**********PLUME HEIGHT PARAMETER FREQUENCY ... **********

CIRCULAR MECHANICAL DRAFT COOLING TOWERS - CATAWBA NUCLEAR STATION

PLUME HEIGHT RANGE (M)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
	**********WIND HEADED**********																
	S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	SUM
.0 TO 0.1	0.009	0.014	0.018	0.010	0.010	0.008	0.013	0.015	0.013	0.038	0.041	0.017	0.014	0.007	0.007	0.006	0.242
0.1 TO 0.2	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.003	0.004	0.002	0.001	0.001	0.001	0.001	0.022
0.2 TO 0.3	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.003	0.003	0.001	0.001	0.001	0.001	0.001	0.022
0.3 TO 0.4	0.001	0.001	0.002	0.001	0.001	0.001	0.000	0.001	0.002	0.003	0.003	0.001	0.001	0.001	0.001	0.001	0.021
0.4 TO 0.5	0.001	0.002	0.003	0.001	0.001	0.001	0.001	0.001	0.001	0.004	0.003	0.001	0.001	0.001	0.001	0.001	0.022
0.5 TO 0.6	0.001	0.001	0.003	0.001	0.001	0.000	0.001	0.001	0.001	0.002	0.003	0.001	0.001	0.001	0.001	0.001	0.022
0.6 TO 0.7	0.000	0.001	0.002	0.001	0.001	0.000	0.000	0.000	0.002	0.003	0.003	0.001	0.001	0.001	0.001	0.001	0.018
0.7 TO 0.8	0.002	0.001	0.002	0.001	0.001	0.001	0.000	0.001	0.001	0.001	0.003	0.003	0.001	0.001	0.001	0.001	0.021
0.8 TO 0.9	0.001	0.002	0.002	0.001	0.001	0.000	0.000	0.001	0.001	0.004	0.003	0.002	0.001	0.002	0.001	0.001	0.022
0.9 TO 1.0	0.001	0.001	0.002	0.001	0.001	0.000	0.001	0.001	0.001	0.003	0.003	0.001	0.001	0.001	0.001	0.001	0.018
1.0 TO 1.1	0.002	0.001	0.002	0.001	0.001	0.000	0.000	0.001	0.001	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.017
1.1 TO 1.2	0.002	0.001	0.002	0.000	0.001	0.000	0.000	0.000	0.001	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.016
1.2 TO 1.3	0.002	0.001	0.003	0.000	0.001	0.001	0.000	0.000	0.001	0.003	0.002	0.001	0.001	0.001	0.001	0.001	0.018
1.3 TO 1.4	0.001	0.002	0.002	0.001	0.001	0.000	0.000	0.001	0.001	0.003	0.003	0.002	0.001	0.001	0.001	0.001	0.019
1.4 TO 1.5	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.001	0.001	0.003	0.001	0.001	0.001	0.000	0.001	0.001	0.016
1.5 TO 1.6	0.001	0.002	0.001	0.001	0.001	0.000	0.001	0.001	0.001	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.015
1.6 TO 1.7	0.002	0.001	0.002	0.000	0.001	0.000	0.000	0.001	0.001	0.002	0.002	0.001	0.001	0.001	0.000	0.001	0.016
1.7 TO 1.8	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.002	0.001	0.001	0.001	0.000	0.001	0.014
1.8 TO 1.9	0.001	0.001	0.001	0.000	0.001	0.001	0.000	0.001	0.000	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.013
1.9 TO 2.0	0.001	0.000	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.002	0.001	0.001	0.000	0.000	0.001	0.015
2.0 TO 2.1	0.001	0.001	0.002	0.001	0.000	0.000	0.000	0.000	0.000	0.002	0.001	0.001	0.000	0.001	0.000	0.001	0.012
2.1 TO 2.2	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.001	0.001	0.002	0.001	0.001	0.001	0.000	0.001	0.000	0.012
2.2 TO 2.3	0.001	0.002	0.001	0.001	0.000	0.000	0.000	0.000	0.001	0.002	0.001	0.000	0.001	0.000	0.000	0.001	0.012
2.3 TO 2.4	0.001	0.001	0.001	0.000	0.000	0.000	0.001	0.001	0.001	0.002	0.002	0.001	0.000	0.000	0.000	0.001	0.012
2.4 TO 2.5	0.001	0.001	0.001	0.001	0.000	0.000	0.001	0.001	0.000	0.002	0.001	0.000	0.001	0.000	0.000	0.001	0.011
2.5 TO 2.6	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.001	0.001	0.002	0.001	0.001	0.001	0.001	0.000	0.001	0.010
2.6 TO 2.7	0.001	0.001	0.001	0.000	0.000	0.000	0.001	0.001	0.001	0.002	0.001	0.001	0.000	0.000	0.001	0.000	0.011
2.7 TO 2.8	0.001	0.001	0.002	0.000	0.000	0.001	0.000	0.000	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.010
2.8 TO 2.9	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.002	0.001	0.000	0.000	0.000	0.000	0.000	0.009
2.9 TO 3.0	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.001	0.000	0.000	0.000	0.001	0.008
3.0 TO 3.1	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.001	0.000	0.000	0.000	0.001	0.009
3.1 TO 3.2	0.001	0.001	0.001	0.000	0.000	0.000	0.001	0.000	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.009
3.2 TO 3.3	0.001	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.008
3.3 TO 3.4	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.001	0.001	0.000	0.000	0.000	0.000	0.007
3.4 TO 3.5	0.001	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.006
3.5 TO 3.6	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.007
3.6 TO 3.7	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.006
3.7 TO 3.8	0.000	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.007
3.8 TO 3.9	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.006
3.9 TO 4.0	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.001	0.000	0.000	0.000	0.000	0.005
4.0 TO 4.1	0.000	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.005
4.1 TO 4.2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.005
4.2 TO 4.3	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.005
4.3 TO 4.4	0.000	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.005
4.4 TO 4.5	0.001	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.006
4.5 TO 4.6	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.004
4.6 TO 4.7	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.004
4.7 TO 4.8	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.003
4.8 TO 4.9	0.000	0.000	0.001	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.004
4.9 TO 5.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.003

PLUME HEIGHT PARAMETER FREQUENCY TABLE

CIRCULAR MECHANICAL DRAFT COOLING TOWERS - CATAWBA NUCLEAR STATION

PLUME HEIGHT RANGE (M)	WIND FROM: N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
	WIND HEADED: S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	SUM
5.0 TO 5.2	0.001	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.001	0.000	0.000	0.000	0.000	0.006
5.2 TO 5.4	0.001	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.001	0.000	0.000	0.000	0.000	0.006
5.4 TO 5.6	0.001	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.006
5.6 TO 5.8	0.001	0.000	0.001	0.000	0.000	0.000	0.000	0.001	0.000	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.006
5.8 TO 6.0	0.001	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.005
6.0 TO 6.2	0.001	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.004
6.2 TO 6.4	0.000	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.004
6.4 TO 6.6	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.003
6.6 TO 6.8	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003
6.8 TO 7.0	0.000	0.001	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.005
7.0 TO 7.2	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.004
7.2 TO 7.4	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.004
7.4 TO 7.6	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.003
7.6 TO 7.8	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002
7.8 TO 8.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.003
8.0 TO 8.2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003
8.2 TO 8.4	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002
8.4 TO 8.6	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002
8.6 TO 8.8	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002
8.8 TO 9.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002
9.0 TO 9.2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002
9.2 TO 9.4	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002
9.4 TO 9.6	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002
9.6 TO 9.8	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002
9.8 TO 10.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002
10.0 TO 10.5	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.004
10.5 TO 11.0	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.004
11.0 TO 11.5	0.000	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.004
11.5 TO 12.0	0.000	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.004
12.0 TO 12.5	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002
12.5 TO 13.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.003
13.0 TO 13.5	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002
13.5 TO 14.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002
14.0 TO 14.5	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002
14.5 TO 15.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001
15.0 TO 15.5	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002
15.5 TO 16.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002
16.0 TO 16.5	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002
16.5 TO 17.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001
17.0 TO 17.5	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002
17.5 TO 18.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002
18.0 TO 18.5	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002
18.5 TO 19.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002
19.0 TO 19.5	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002
19.5 TO 20.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003
20.0 TO OVER	0.006	0.005	0.008	0.002	0.002	0.001	0.001	0.001	0.002	0.005	0.005	0.002	0.003	0.002	0.002	0.002	0.049

AVERAGE	3.59724	VARIANCE	35.5734	STD DEV	5.96426
STD ERR	0.04822	SKEWNESS	2.89398	KURTOSIS	9.46090

**********PLUME LENGTH-K-STABILITY FREQUENCY TABLE**********
CIRCULAR MECHANICAL DRAFT COOLING TOWERS - CATAWBA NUCLEAR STATION
****

PLUME LENGTH RANGE (M)	STABILITY CATEGORY 1			STABILITY CATEGORY 2			STABILITY CATEGORY 3		
	K1	K2	K3	K1	K2	K3	K1	K2	K3
0.0 TO 0.2	0.131	0.001	0.000	0.104	0.003	0.000	0.020	0.000	0.000
0.2 TO 0.4	0.009	0.000	0.000	0.021	0.000	0.000	0.007	0.000	0.000
0.4 TO 0.6	0.007	0.000	0.000	0.018	0.001	0.000	0.006	0.000	0.000
0.6 TO 0.8	0.006	0.000	0.000	0.018	0.000	0.000	0.007	0.000	0.000
0.8 TO 1.0	0.005	0.000	0.000	0.015	0.000	0.000	0.006	0.000	0.000
1.0 TO 1.2	0.004	0.000	0.000	0.015	0.000	0.000	0.005	0.000	0.000
1.2 TO 1.4	0.004	0.000	0.000	0.013	0.000	0.000	0.005	0.000	0.000
1.4 TO 1.6	0.003	0.000	0.000	0.011	0.000	0.000	0.005	0.000	0.000
1.6 TO 1.8	0.003	0.000	0.000	0.013	0.000	0.000	0.005	0.000	0.000
1.8 TO 2.0	0.002	0.000	0.000	0.010	0.000	0.000	0.005	0.000	0.000
2.0 TO 2.2	0.002	0.000	0.000	0.012	0.000	0.000	0.004	0.000	0.000
2.2 TO 2.4	0.002	0.000	0.000	0.010	0.000	0.000	0.005	0.000	0.000
2.4 TO 2.6	0.002	0.000	0.000	0.010	0.000	0.000	0.004	0.000	0.000
2.6 TO 2.8	0.002	0.000	0.000	0.008	0.000	0.000	0.004	0.000	0.000
2.8 TO 3.0	0.002	0.000	0.000	0.010	0.000	0.000	0.004	0.000	0.000
3.0 TO 3.2	0.001	0.000	0.000	0.009	0.000	0.000	0.004	0.000	0.000
3.2 TO 3.4	0.001	0.000	0.000	0.008	0.000	0.000	0.003	0.000	0.000
3.4 TO 3.6	0.001	0.000	0.000	0.009	0.000	0.000	0.004	0.000	0.000
3.6 TO 3.8	0.001	0.000	0.000	0.008	0.000	0.000	0.003	0.000	0.000
3.8 TO 4.0	0.001	0.000	0.000	0.008	0.000	0.000	0.004	0.000	0.000
4.0 TO 4.2	0.001	0.000	0.000	0.008	0.000	0.000	0.003	0.000	0.000
4.2 TO 4.4	0.001	0.000	0.000	0.006	0.000	0.000	0.003	0.000	0.000
4.4 TO 4.6	0.001	0.000	0.000	0.006	0.000	0.000	0.003	0.000	0.000
4.6 TO 4.8	0.000	0.000	0.000	0.005	0.000	0.000	0.003	0.000	0.000
4.8 TO 5.0	0.001	0.000	0.000	0.006	0.000	0.000	0.002	0.000	0.000
5.0 TO 5.2	0.001	0.000	0.000	0.006	0.000	0.000	0.002	0.000	0.000
5.2 TO 5.4	0.000	0.000	0.000	0.007	0.000	0.000	0.002	0.000	0.000
5.4 TO 5.6	0.000	0.000	0.000	0.005	0.000	0.000	0.003	0.000	0.000
5.6 TO 5.8	0.001	0.000	0.000	0.006	0.000	0.000	0.002	0.000	0.000
5.8 TO 6.0	0.000	0.000	0.000	0.004	0.000	0.000	0.002	0.000	0.000
6.0 TO 6.2	0.000	0.000	0.000	0.004	0.000	0.000	0.003	0.000	0.000
6.2 TO 6.4	0.001	0.000	0.000	0.003	0.000	0.000	0.001	0.000	0.000
6.4 TO 6.6	0.000	0.000	0.000	0.005	0.000	0.000	0.002	0.000	0.000
6.6 TO 6.8	0.000	0.000	0.000	0.004	0.000	0.000	0.002	0.000	0.000
6.8 TO 7.0	0.000	0.000	0.000	0.003	0.000	0.000	0.002	0.000	0.000
7.0 TO 7.2	0.000	0.000	0.000	0.004	0.000	0.000	0.002	0.000	0.000
7.2 TO 7.4	0.000	0.000	0.000	0.003	0.000	0.000	0.002	0.000	0.000
7.4 TO 7.6	0.000	0.000	0.000	0.003	0.000	0.000	0.002	0.000	0.000
7.6 TO 7.8	0.000	0.000	0.000	0.003	0.000	0.000	0.002	0.000	0.000
7.8 TO 8.0	0.000	0.000	0.000	0.003	0.000	0.000	0.001	0.000	0.000
8.0 TO 8.2	0.000	0.000	0.000	0.003	0.000	0.000	0.001	0.000	0.000
8.2 TO 8.4	0.000	0.000	0.000	0.002	0.000	0.000	0.001	0.000	0.000
8.4 TO 8.6	0.000	0.000	0.000	0.003	0.000	0.000	0.001	0.000	0.000
8.6 TO 8.8	0.000	0.000	0.000	0.002	0.000	0.000	0.001	0.000	0.000
8.8 TO 9.0	0.000	0.000	0.000	0.003	0.000	0.000	0.001	0.000	0.000
9.0 TO 9.2	0.000	0.000	0.000	0.002	0.000	0.000	0.001	0.000	0.000
9.2 TO 9.4	0.000	0.000	0.000	0.003	0.000	0.000	0.001	0.000	0.000
9.4 TO 9.6	0.000	0.000	0.000	0.001	0.000	0.000	0.001	0.000	0.000
9.6 TO 9.8	0.000	0.000	0.000	0.002	0.000	0.000	0.001	0.000	0.000
9.8 TO 10.0	0.000	0.000	0.000	0.002	0.000	0.000	0.002	0.000	0.000

**********PLUME LENGTH-K-STABILITY FREQUENCY TABLE**********

CIRCULAR MECHANICAL DRAFT COOLING TOWERS - CATAWBA NUCLEAR STATION

PLUME LENGTH RANGE (M)	STABILITY CATEGORY 1			STABILITY CATEGORY 2			STABILITY CATEGORY 3		
	K1	K2	K3	K1	K2	K3	K1	K2	K3
10.0 TO 10.4	0.000	0.000	0.000	0.003	0.000	0.000	0.002	0.000	0.000
10.4 TO 10.8	0.000	0.000	0.000	0.004	0.000	0.000	0.002	0.000	0.000
10.8 TO 11.2	0.000	0.000	0.000	0.002	0.000	0.000	0.002	0.000	0.000
11.2 TO 11.6	0.000	0.000	0.000	0.004	0.000	0.000	0.002	0.000	0.000
11.6 TO 12.0	0.000	0.000	0.000	0.002	0.000	0.000	0.001	0.000	0.000
12.0 TO 12.4	0.000	0.000	0.000	0.003	0.000	0.000	0.001	0.000	0.000
12.4 TO 12.8	0.000	0.000	0.000	0.003	0.000	0.000	0.001	0.000	0.000
12.8 TO 13.2	0.000	0.000	0.000	0.002	0.000	0.000	0.001	0.000	0.000
13.2 TO 13.6	0.000	0.000	0.000	0.002	0.000	0.000	0.001	0.000	0.000
13.6 TO 14.0	0.000	0.000	0.000	0.003	0.000	0.000	0.001	0.000	0.000
14.0 TO 14.4	0.000	0.000	0.000	0.002	0.000	0.000	0.001	0.000	0.000
14.4 TO 14.8	0.000	0.000	0.000	0.002	0.000	0.000	0.001	0.000	0.000
14.8 TO 15.2	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.000
15.2 TO 15.6	0.000	0.000	0.000	0.002	0.000	0.000	0.001	0.000	0.000
15.6 TO 16.0	0.000	0.000	0.000	0.001	0.000	0.000	0.001	0.000	0.000
16.0 TO 16.4	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000
16.4 TO 16.8	0.000	0.000	0.000	0.001	0.000	0.000	0.001	0.000	0.000
16.8 TO 17.2	0.000	0.000	0.000	0.001	0.000	0.000	0.001	0.000	0.000
17.2 TO 17.6	0.000	0.000	0.000	0.001	0.000	0.000	0.001	0.000	0.000
17.6 TO 18.0	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000
18.0 TO 18.4	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000
18.4 TO 18.8	0.000	0.000	0.000	0.001	0.000	0.000	0.001	0.000	0.000
18.8 TO 19.2	0.000	0.000	0.000	0.001	0.000	0.000	0.001	0.000	0.000
19.2 TO 19.6	0.000	0.000	0.000	0.001	0.000	0.000	0.001	0.000	0.000
19.6 TO 20.0	0.000	0.000	0.000	0.001	0.000	0.000	0.001	0.000	0.000
20.0 TO 21.0	0.000	0.000	0.000	0.002	0.000	0.000	0.001	0.000	0.000
21.0 TO 22.0	0.000	0.000	0.000	0.002	0.000	0.000	0.001	0.000	0.000
22.0 TO 23.0	0.000	0.000	0.000	0.003	0.000	0.000	0.001	0.000	0.000
23.0 TO 24.0	0.000	0.000	0.000	0.002	0.000	0.000	0.001	0.000	0.000
24.0 TO 25.0	0.000	0.000	0.000	0.002	0.000	0.000	0.001	0.000	0.000
25.0 TO 26.0	0.000	0.000	0.000	0.003	0.000	0.000	0.001	0.000	0.000
26.0 TO 27.0	0.000	0.000	0.000	0.002	0.000	0.000	0.001	0.000	0.000
27.0 TO 28.0	0.000	0.000	0.000	0.002	0.000	0.000	0.001	0.000	0.000
28.0 TO 29.0	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000
29.0 TO 30.0	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000
30.0 TO 31.0	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.000
31.0 TO 32.0	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000
32.0 TO 33.0	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000
33.0 TO 34.0	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000
34.0 TO 35.0	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000
35.0 TO 36.0	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000
36.0 TO 37.0	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000
37.0 TO 38.0	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000
38.0 TO 39.0	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000
39.0 TO 40.0	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000
40.0 TO OVER	0.001	0.000	0.000	0.041	0.001	0.000	0.009	0.000	0.000

REFERENCE HEIGHT= 40. M

CAT NUM	TYPE	UH	MX	DBT	DTDZ	DPT	VE	TE	MXHT	PLGT	FREQ
1	FOG	13.5	0.25	263.1	-0.010	262.6	11.3	297.3	500.	299.37	0.0000
2	FOG	17.5	0.25	263.1	-0.010	262.6	11.3	297.3	500.	359.02	0.0000
3	FOG	13.5	0.25	263.1	-0.010	261.1	11.3	297.2	500.	298.89	0.0000
4	FOG	17.5	0.25	263.1	-0.010	261.1	11.3	297.2	500.	358.43	0.0000
5	FOG	17.5	0.25	263.1	-0.010	258.6	11.3	297.0	500.	357.56	0.0000
6	FOG	13.5	0.25	273.1	-0.010	272.6	11.5	300.8	500.	279.37	0.0000
7	FOG	17.5	0.25	273.1	-0.010	272.6	11.5	300.8	500.	333.81	0.0000
8	FOG	17.5	0.25	273.1	-0.010	270.1	11.5	300.4	500.	331.84	0.0000
9	FOG	17.5	0.25	283.1	-0.010	281.1	11.7	304.3	500.	300.85	0.0000
10	FOG	17.5	0.25	293.1	-0.010	291.6	11.9	308.8	500.	263.81	0.0000
11	PLUME	3.6	0.15	299.4	-0.018	285.7	11.9	308.1	370.	63.36	0.1308
12	PLUME	3.2	0.25	297.6	-0.010	286.6	11.9	308.0	370.	56.93	0.1041
13	PLUME	3.1	0.30	296.5	0.030	286.5	11.9	307.8	370.	64.12	0.0199
14	PLUME	8.7	0.15	295.1	-0.018	279.0	11.8	306.0	370.	138.43	0.0013
15	PLUME	9.6	0.25	292.9	-0.010	277.5	11.8	305.4	370.	133.97	0.0034
16	PLUME	13.5	0.25	287.7	-0.010	269.8	11.7	303.4	370.	208.20	0.0001
17	PLUME	3.3	0.15	291.1	-0.018	281.4	11.8	305.8	370.	75.06	0.0095
18	PLUME	3.0	0.25	292.1	-0.010	283.9	11.8	306.5	370.	60.90	0.0207
19	PLUME	2.5	0.30	292.5	0.030	284.7	11.8	306.8	370.	61.10	0.0068
20	PLUME	9.0	0.15	294.3	-0.018	287.0	11.9	307.6	370.	157.60	0.0001
21	PLUME	3.3	0.25	290.8	-0.010	282.5	11.8	306.0	370.	67.34	0.0261
22	PLUME	3.2	0.25	290.1	-0.010	282.0	11.8	305.7	370.	75.82	0.0301
23	PLUME	3.2	0.25	289.2	-0.010	281.6	11.8	305.5	370.	76.47	0.0282
24	PLUME	3.3	0.25	288.1	-0.010	280.5	11.7	305.1	370.	79.44	0.0252
25	PLUME	3.3	0.25	288.0	-0.010	281.0	11.7	305.2	370.	79.67	0.0280
26	PLUME	3.4	0.25	287.5	-0.010	280.7	11.7	305.0	370.	82.15	0.0356
27	PLUME	3.3	0.25	286.2	-0.010	279.5	11.7	304.5	370.	82.13	0.0229
28	PLUME	3.6	0.25	286.3	-0.010	279.8	11.7	304.6	370.	87.76	0.0311
29	PLUME	3.5	0.25	285.3	-0.010	279.1	11.7	304.3	370.	86.51	0.0317
30	PLUME	3.6	0.25	284.1	-0.010	278.1	11.7	303.9	370.	88.83	0.0221
31	PLUME	3.7	0.25	285.3	-0.010	279.9	11.7	304.4	370.	90.37	0.0361
32	PLUME	3.6	0.25	283.3	-0.010	277.9	11.7	303.7	370.	90.71	0.0248
33	PLUME	3.5	0.25	282.3	-0.010	276.9	11.6	303.3	370.	89.05	0.0261
34	PLUME	3.8	0.25	282.8	-0.010	277.9	11.7	303.6	370.	95.72	0.0281
35	PLUME	3.7	0.25	281.9	-0.010	277.5	11.6	303.3	370.	93.68	0.0326
36	PLUME	3.7	0.25	281.3	-0.010	277.2	11.6	303.2	370.	95.45	0.0271
37	PLUME	3.8	0.25	280.8	-0.010	277.0	11.6	303.1	370.	97.54	0.0284
38	PLUME	3.8	0.25	280	-0.010	277.1	11.6	303.0	370.	98.64	0.0278
39	PLUME	3.8	0.25	280.	-0.010	277.3	11.6	302.9	370.	98.35	0.0297
40	PLUME	3.7	0.25	280	-0.010	278.8	11.6	303.4	370.	96.30	0.0279
41	PLUME	3.7	0.25	281.	-0.010	279.8	11.6	303.7	370.	95.36	0.0288
42	PLUME	3.4	0.25	282.	-0.010	281.4	11.7	304.2	370.	89.12	0.0288
43	PLUME	3.2	0.25	281.3	-0.010	281.4	11.7	304.0	370.	86.80	0.0660
44	PLUME	2.5	0.30	277.6	0.030	278.2	11.6	302.7	370.	73.11	0.0093
45	PLUME	8.9	0.25	285.3	-0.010	285.0	11.8	305.6	370.	186.74	0.0007

MET RECORDS READ :	37974
RECORDS DISCARDED:	22674
CALM RECORDS:	3
TOTAL TO NEW FILE:	15300

********** FREQUENCY PERCENTAGE BY CATEGORY AND WIND DIRECTION **********

CIRCULAR MECHANICAL DRAFT COOLING TOWERS - CATAWBA NUCLEAR STATION

SEASON=SPRING

********** WIND FROM **********

CATEGORY NUMBER	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
********** PLUME HEADED **********	S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	SUM
11	0.64	0.97	0.97	0.54	0.64	0.40	1.18	1.15	0.78	2.90	2.93	1.40	1.34	0.59	0.59	0.38	17.40
12	0.78	0.64	0.72	0.30	0.51	0.19	0.43	0.48	0.59	2.01	1.53	0.59	0.35	0.46	0.48	0.64	10.71
13	0.03	0.08	0.03	0.03	0.03	0.03	0.05	0.19	0.32	0.91	0.43	0.21	0.24	0.11	0.13	0.11	2.93
14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.19	0.08	0.03	0.00	0.00	0.00	0.32
15	0.00	0.00	0.00	0.03	0.03	0.00	0.00	0.00	0.00	0.03	0.46	0.16	0.03	0.05	0.00	0.00	0.78
16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.03
17	0.00	0.19	0.16	0.11	0.08	0.03	0.11	0.68	0.11	0.13	0.21	0.11	0.05	0.05	0.05	0.05	1.53
18	0.21	0.27	0.08	0.03	0.03	0.13	0.00	0.13	0.05	0.24	0.13	0.08	0.03	0.05	0.05	0.11	1.64
19	0.05	0.03	0.00	0.00	0.03	0.05	0.03	0.03	0.08	0.13	0.08	0.08	0.08	0.00	0.03	0.11	0.83
20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.03
21	0.27	0.21	0.13	0.05	0.11	0.05	0.13	0.21	0.27	0.32	0.59	0.13	0.11	0.00	0.16	0.08	2.85
22	0.19	0.16	0.40	0.19	0.03	0.05	0.11	0.08	0.19	0.38	0.43	0.11	0.05	0.11	0.21	0.16	2.85
23	0.21	0.13	0.32	0.21	0.11	0.00	0.13	0.19	0.05	0.48	0.48	0.21	0.32	0.19	0.19	0.13	3.38
24	0.11	0.13	0.30	0.19	0.05	0.03	0.16	0.24	0.13	0.40	0.38	0.27	0.11	0.13	0.08	0.13	2.85
25	0.21	0.11	0.24	0.08	0.19	0.05	0.13	0.24	0.16	0.46	0.56	0.21	0.19	0.11	0.19	0.13	3.28
26	0.11	0.21	0.40	0.30	0.16	0.08	0.16	0.13	0.19	0.54	0.32	0.21	0.21	0.11	0.11	0.32	3.57
27	0.21	0.11	0.11	0.05	0.03	0.11	0.11	0.13	0.11	0.35	0.30	0.24	0.13	0.05	0.16	0.11	2.31
28	0.19	0.27	0.24	0.27	0.16	0.05	0.03	0.13	0.05	0.54	0.43	0.13	0.00	0.08	0.11	0.08	2.77
29	0.08	0.24	0.40	0.19	0.11	0.11	0.08	0.13	0.21	0.43	0.38	0.21	0.19	0.21	0.11	0.11	3.19
30	0.19	0.08	0.32	0.13	0.13	0.03	0.11	0.16	0.11	0.46	0.30	0.13	0.16	0.05	0.05	0.08	2.50
31	0.32	0.11	0.40	0.32	0.08	0.19	0.19	0.24	0.16	0.43	0.27	0.24	0.11	0.05	0.16	0.08	3.36
32	0.16	0.27	0.21	0.08	0.05	0.05	0.21	0.19	0.08	0.46	0.30	0.19	0.05	0.03	0.05	0.13	2.52
33	0.13	0.16	0.27	0.05	0.19	0.08	0.21	0.27	0.11	0.51	0.13	0.19	0.16	0.11	0.11	0.08	2.77
34	0.08	0.16	0.24	0.08	0.13	0.05	0.13	0.19	0.21	0.35	0.16	0.11	0.21	0.08	0.05	0.00	2.26
35	0.16	0.16	0.19	0.16	0.05	0.08	0.08	0.21	0.16	0.70	0.40	0.30	0.03	0.03	0.08	0.00	2.79
36	0.08	0.05	0.27	0.21	0.11	0.05	0.24	0.21	0.11	0.56	0.30	0.11	0.16	0.11	0.03	0.05	2.66
37	0.16	0.11	0.21	0.05	0.05	0.03	0.13	0.21	0.16	0.40	0.35	0.19	0.03	0.03	0.05	0.00	2.17
38	0.16	0.03	0.27	0.08	0.05	0.13	0.11	0.24	0.05	0.43	0.30	0.19	0.11	0.05	0.00	0.03	2.23
39	0.21	0.11	0.35	0.11	0.16	0.24	0.21	0.08	0.32	0.48	0.32	0.13	0.11	0.03	0.05	0.05	2.98
40	0.35	0.05	0.30	0.03	0.05	0.16	0.13	0.19	0.16	0.24	0.32	0.27	0.13	0.00	0.00	0.03	2.42
41	0.11	0.08	0.38	0.13	0.16	0.05	0.13	0.13	0.16	0.35	0.27	0.21	0.03	0.03	0.00	0.03	2.26
42	0.08	0.30	0.35	0.11	0.16	0.03	0.03	0.24	0.21	0.16	0.05	0.11	0.03	0.00	0.03	0.00	1.88
43	0.16	0.21	0.72	0.19	0.21	0.13	0.56	0.27	0.32	0.38	0.16	0.13	0.08	0.05	0.05	0.03	3.68
44	0.03	0.00	0.05	0.00	0.03	0.00	0.00	0.05	0.03	0.05	.00	0.03	0.00	0.00	0.00	0.00	0.27
45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	.00	0.00	0.00	0.00	0.00	0.00	0.05
TOTALS	5.69	5.64	9.05	4.30	3.95	2.68	5.34	6.52	5.69	16.21	13.50	6.98	4.86	2.95	3.38	3.25	100.00

STABILITY CLASS BY WIND DIRECTION

CIRCULAR MECHANICAL DRAFT COOLING TOWERS - CATAWBA NUCLEAR STATION
SEASON=SPRING

STABILITY CLASS	WIND FROM PLUME HEADED																
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
	S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	STAG.
1	0.09	0.15	0.12	0.15	0.12	0.12	0.22	0.22	0.13	0.16	0.25	0.22	0.25	0.15	0.17	0.09	0.00
2	0.03	0.09	0.06	0.12	0.14	0.04	0.09	0.02	0.06	0.05	0.06	0.04	0.07	0.11	0.08	0.04	0.00
3	0.02	0.04	0.06	0.07	0.07	0.05	0.03	0.02	0.02	0.05	0.03	0.04	0.03	0.05	0.05	0.04	0.00
4	0.29	0.34	0.46	0.46	0.37	0.37	0.34	0.26	0.24	0.27	0.24	0.17	0.16	0.23	0.14	0.18	0.00
5	0.26	0.13	0.18	0.10	0.22	0.24	0.15	0.18	0.26	0.26	0.21	0.24	0.18	0.21	0.27	0.38	0.00
6	0.10	0.10	0.05	0.08	0.03	0.04	0.06	0.07	0.07	0.10	0.08	0.12	0.15	0.14	0.07	0.11	0.00
7	0.20	0.16	0.08	0.05	0.05	0.14	0.12	0.22	0.23	0.11	0.12	0.19	0.15	0.12	0.22	0.16	0.00

WIND SPEED DISTRIBUTION BY DIRECTION AT REFERENCE HEIGHT OF 200. METERS

CIRCULAR MECHANICAL DRAFT COOLING TOWERS - CATAWBA NUCLEAR STATION
SEASON=SPRING

WIND RANGE	WIND FROM PLUME HEADED																
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
	S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	STAG.
1	0.23	0.30	0.21	0.26	0.30	0.31	0.30	0.28	0.29	0.14	0.11	0.12	0.19	0.18	0.27	0.14	0.00
2	0.58	0.57	0.61	0.62	0.52	0.49	0.54	0.53	0.57	0.67	0.50	0.43	0.36	0.34	0.44	0.53	0.00
3	0.19	0.13	0.18	0.12	0.18	0.20	0.17	0.19	0.14	0.18	0.39	0.45	0.45	0.48	0.29	0.33	0.00

COMBINED FACTORS BY WIND DIRECTION

CIRCULAR MECHANICAL DRAFT COOLING TOWERS - CATAWBA NUCLEAR STATION
SEASON=SPRING

COMBINED CLASS*	WIND FROM PLUME HEADED																
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
	S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	STAG.
1	0.03	0.09	0.05	0.08	0.10	0.07	0.10	0.07	0.06	0.04	0.04	0.03	0.07	0.06	0.08	0.02	0.00
2	0.08	0.16	0.15	0.19	0.17	0.10	0.18	0.14	0.12	0.17	0.17	0.13	0.13	0.10	0.13	0.09	0.00
3	0.03	0.04	0.04	0.04	0.06	0.04	0.05	0.05	0.03	0.05	0.14	0.13	0.16	0.15	0.08	0.06	0.00
4	0.12	0.14	0.13	0.15	0.18	0.19	0.15	0.12	0.14	0.08	0.05	0.05	0.06	0.08	0.11	0.08	0.00
5	0.32	0.26	0.38	0.34	0.31	0.30	0.26	0.23	0.28	0.36	0.22	0.17	0.12	0.15	0.18	0.30	0.00
6	0.11	0.06	0.12	0.07	0.11	0.12	0.08	0.08	0.07	0.10	0.18	0.18	0.15	0.21	0.12	0.19	0.00
7	0.07	0.08	0.03	0.03	0.02	0.06	0.05	0.08	0.09	0.03	0.02	0.04	0.06	0.05	0.08	0.04	0.00
8	0.18	0.14	0.08	0.08	0.04	0.09	0.10	0.16	0.17	0.14	0.10	0.13	0.11	0.09	0.13	0.14	0.00
9	0.06	0.03	0.02	0.02	0.01	0.04	0.03	0.06	0.04	0.04	0.08	0.14	0.14	0.12	0.08	0.09	0.00

* COMBINED CLASSES ARE DEFINED AS FOLLOWS:
1=UNSTABLE, LOW WIND 2=UNSTABLE, MODERATE WIND 3=UNSTABLE, HIGH WIND
4=NEUTRAL, LOW WIND 5=NEUTRAL MODERATE WIND 6=NEUTRAL, HIGH WIND
7=STABLE, LOW WIND 8=STABLE, MODERATE WIND 9=STABLE, HIGH WIND

PLUME LENGTH FREQUENCY TABLE

CIRCULAR MECHANICAL DRAFT COOLING TOWERS - CATAWBA NUCLEAR STATION

SEASON=SPRING

DISTANCE FROM TOWER (M)	WIND FROM N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	SUM
	PLUME HEADED S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	SUM
50.	5.69	5.64	9.05	4.30	3.95	2.68	5.34	6.52	5.69	16.21	13.50	6.98	4.86	2.95	3.38	3.25	100.00
100.	5.69	5.64	9.05	4.30	3.95	2.68	5.34	6.52	5.69	16.21	13.50	6.98	4.86	2.95	3.38	3.25	100.00
150.	4.27	4.03	7.36	3.36	2.71	2.09	3.73	4.81	4.21	11.30	9.05	4.89	3.11	1.91	2.31	2.17	71.30
200.	1.88	3.76	7.17	1.29	1.42	1.48	2.60	2.55	2.09	10.26	8.21	2.15	1.13	0.94	0.94	0.43	48.29
250.	1.58	2.12	4.94	1.15	1.18	0.64	1.40	2.09	1.91	6.39	4.03	1.77	0.91	0.35	0.40	0.21	31.09
300.	1.50	2.12	4.94	1.07	1.05	0.40	1.07	1.91	1.69	6.39	4.00	1.66	0.70	0.27	0.24	0.21	29.23
350.	1.50	1.88	4.54	1.07	1.05	0.40	1.07	1.91	1.69	5.96	3.62	1.66	0.70	0.27	0.24	0.21	27.78
400.	1.50	1.88	4.54	1.07	1.05	0.38	0.97	1.91	1.69	5.96	3.62	1.66	0.70	0.21	0.19	0.21	27.54
450.	1.50	1.80	4.21	1.07	1.05	0.38	0.97	1.91	1.69	5.50	3.33	1.66	0.70	0.21	0.19	0.21	26.39
500.	1.50	1.69	3.81	1.07	1.05	0.38	0.97	1.91	1.69	5.07	3.06	1.66	0.70	0.21	0.19	0.21	25.18
550.	1.50	1.69	3.81	1.07	1.05	0.38	0.97	1.91	1.69	5.07	3.06	1.66	0.70	0.21	0.19	0.21	25.18
600.	1.50	1.69	3.81	1.07	1.05	0.38	0.97	1.91	1.69	5.07	3.06	1.66	0.70	0.21	0.19	0.21	25.18
650.	1.50	1.69	3.81	1.07	1.05	0.38	0.97	1.91	1.69	5.07	3.06	1.66	0.70	0.21	0.19	0.21	25.18
700.	1.50	1.69	3.81	1.07	1.05	0.38	0.97	1.91	1.69	5.07	3.06	1.66	0.70	0.21	0.19	0.21	25.18
750.	1.50	1.69	3.81	1.07	1.05	0.38	0.97	1.91	1.69	5.07	3.06	1.66	0.70	0.21	0.19	0.21	25.18
800.	1.50	1.69	3.81	1.07	1.05	0.38	0.97	1.91	1.69	5.07	3.06	1.66	0.70	0.21	0.19	0.21	25.18
850.	1.50	1.69	3.81	1.07	1.05	0.38	0.97	1.91	1.69	5.07	3.06	1.66	0.70	0.21	0.19	0.21	25.18
900.	1.50	1.69	3.81	1.07	1.05	0.38	0.97	1.91	1.69	5.07	3.06	1.66	0.70	0.21	0.19	0.21	25.18
950.	1.50	1.42	3.60	1.07	1.05	0.38	0.97	1.91	1.69	4.62	2.77	1.66	0.70	0.21	0.19	0.21	23.95
1000.	1.50	1.26	3.33	1.07	1.05	0.38	0.97	1.91	1.69	4.11	2.63	1.66	0.70	0.21	0.19	0.21	22.87
1050.	1.50	1.26	3.33	1.07	1.05	0.38	0.97	1.91	1.69	4.11	2.63	1.66	0.70	0.21	0.19	0.21	22.87
1100.	1.50	1.26	3.33	1.07	1.05	0.32	0.83	1.91	1.69	4.11	2.63	1.66	0.70	0.13	0.13	0.21	22.55
1150.	1.50	1.10	3.09	1.07	1.05	0.32	0.83	1.91	1.69	3.76	2.47	1.66	0.70	0.13	0.13	0.21	21.64
1200.	1.50	1.10	3.09	1.07	1.05	0.32	0.83	1.91	1.69	3.76	2.47	1.66	0.70	0.13	0.13	0.21	21.64
1250.	1.34	1.10	3.09	0.91	0.99	0.32	0.83	1.69	1.53	3.76	2.47	1.37	0.67	0.13	0.13	0.21	20.56
1300.	1.34	1.10	3.09	0.91	0.99	0.32	0.83	1.69	1.53	3.76	2.47	1.37	0.67	0.13	0.13	0.21	20.56
1350.	1.34	1.10	3.09	0.91	0.99	0.32	0.83	1.69	1.53	3.76	2.47	1.37	0.67	0.13	0.13	0.21	20.56
1400.	1.26	1.10	3.09	0.70	0.89	0.32	0.83	1.48	1.42	3.76	2.47	1.26	0.51	0.13	0.13	0.16	19.52
1450.	1.26	1.10	3.09	0.70	0.89	0.32	0.83	1.48	1.42	3.76	2.47	1.26	0.51	0.13	0.13	0.16	19.52
1500.	1.10	1.10	3.09	0.64	0.83	0.32	0.83	1.26	1.26	3.76	2.47	1.07	0.48	0.13	0.13	0.16	18.66
1550.	1.10	1.10	3.09	0.64	0.83	0.32	0.83	1.26	1.26	3.76	2.47	1.07	0.48	0.13	0.13	0.16	18.66
1600.	1.10	1.05	2.82	0.64	0.83	0.32	0.83	1.26	1.26	3.19	2.17	1.07	0.48	0.13	0.13	0.16	17.48
1650.	1.10	0.94	2.60	0.64	0.83	0.30	0.70	1.26	1.26	2.79	1.83	1.07	0.48	0.11	0.08	0.16	16.16
1700.	1.10	0.94	2.60	0.64	0.83	0.30	0.70	1.26	1.26	2.79	1.83	1.07	0.48	0.11	0.08	0.16	16.16
1750.	0.94	0.94	2.60	0.56	0.78	0.30	0.70	1.02	1.21	2.79	1.83	0.89	0.38	0.11	0.08	0.13	15.25
1800.	0.94	0.94	2.60	0.56	0.78	0.30	0.70	1.02	1.21	2.79	1.83	0.89	0.38	0.11	0.08	0.13	15.25
1850.	0.94	0.78	2.42	0.56	0.78	0.30	0.70	1.02	1.21	2.09	1.42	0.89	0.38	0.11	0.08	0.13	13.80
1900.	0.94	0.78	2.42	0.56	0.78	0.30	0.70	1.02	1.21	2.09	1.42	0.89	0.38	0.11	0.08	0.13	13.80
1950.	0.94	0.78	2.42	0.56	0.78	0.30	0.70	1.02	1.21	2.09	1.42	0.89	0.38	0.11	0.08	0.13	13.80
2000.	0.94	0.78	2.42	0.56	0.78	0.30	0.70	1.02	1.21	2.09	1.42	0.89	0.38	0.11	0.08	0.13	13.80
2050.	0.94	0.75	2.15	0.56	0.78	0.16	0.59	1.02	1.21	1.66	1.13	0.89	0.38	0.05	0.08	0.13	12.48
2100.	0.72	0.75	2.15	0.46	0.62	0.16	0.59	0.94	0.89	1.66	1.13	0.75	0.27	0.05	0.08	0.08	11.30
2150.	0.72	0.75	2.15	0.46	0.62	0.16	0.59	0.94	0.89	1.66	1.13	0.75	0.27	0.05	0.08	0.08	11.30
2200.	0.72	0.75	2.15	0.46	0.62	0.16	0.59	0.94	0.89	1.66	1.13	0.75	0.27	0.05	0.08	0.08	11.30
2250.	0.72	0.75	2.15	0.46	0.62	0.16	0.59	0.94	0.89	1.66	1.13	0.75	0.27	0.05	0.08	0.08	11.30
2300.	0.72	0.75	2.15	0.46	0.62	0.16	0.59	0.94	0.89	1.66	1.13	0.75	0.27	0.05	0.08	0.08	11.30
2350.	0.72	0.75	2.15	0.46	0.62	0.16	0.59	0.94	0.89	1.66	1.13	0.75	0.27	0.05	0.08	0.08	11.30
2400.	0.72	0.75	2.15	0.46	0.62	0.16	0.59	0.94	0.89	1.66	1.13	0.75	0.27	0.05	0.08	0.08	11.30
2450.	0.72	0.64	1.80	0.46	0.62	0.16	0.59	0.94	0.89	1.18	0.81	0.75	0.27	0.05	0.08	0.08	10.04
2500.	0.72	0.64	1.80	0.46	0.62	0.16	0.59	0.94	0.89	1.18	0.81	0.75	0.27	0.05	0.08	0.08	10.04

PLUME LENGTH FREQUENCY TABLE

CIRCULAR MECHANICAL DRAFT COOLING TOWERS - CATAWBA NUCLEAR STATION

SEASON=SPRING

DISTANCE FROM TOWER (M)	WIND FROM PLUME HEADED																
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	SUM
	S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	SUM
2550.	0.72	0.64	1.80	0.46	0.62	0.16	0.59	0.94	0.89	1.18	0.81	0.75	0.27	0.05	0.08	0.08	10.04
2600.	0.72	0.64	1.80	0.46	0.62	0.16	0.59	0.94	0.89	1.18	0.81	0.75	0.27	0.05	0.08	0.08	10.04
2650.	0.72	0.64	1.80	0.46	0.62	0.16	0.59	0.94	0.89	1.18	0.81	0.75	0.27	0.05	0.08	0.08	10.04
2700.	0.72	0.64	1.80	0.46	0.62	0.16	0.59	0.94	0.89	1.18	0.81	0.75	0.27	0.05	0.08	0.08	10.04
2750.	0.72	0.64	1.80	0.46	0.62	0.16	0.59	0.94	0.89	1.18	0.81	0.75	0.27	0.05	0.08	0.08	10.04
2800.	0.72	0.64	1.80	0.46	0.62	0.16	0.59	0.94	0.89	1.18	0.81	0.75	0.27	0.05	0.08	0.08	10.04
2850.	0.72	0.64	1.80	0.46	0.62	0.16	0.59	0.94	0.89	1.18	0.81	0.75	0.27	0.05	0.08	0.08	10.04
2900.	0.38	0.64	1.80	0.43	0.56	0.16	0.59	0.75	0.72	1.18	0.81	0.48	0.13	0.05	0.08	0.05	8.83
2950.	0.38	0.64	1.80	0.43	0.56	0.16	0.59	0.75	0.72	1.18	0.81	0.48	0.13	0.05	0.08	0.05	8.83
3000.	0.38	0.64	1.80	0.43	0.56	0.16	0.59	0.75	0.72	1.18	0.81	0.48	0.13	0.05	0.08	0.05	8.83
3050.	0.38	0.64	1.80	0.43	0.56	0.16	0.59	0.75	0.72	1.18	0.81	0.48	0.13	0.05	0.08	0.05	8.83
3100.	0.38	0.64	1.80	0.43	0.56	0.16	0.59	0.75	0.72	1.18	0.81	0.48	0.13	0.05	0.08	0.05	8.83
3150.	0.38	0.59	1.50	0.43	0.56	0.16	0.59	0.75	0.72	0.94	0.48	0.48	0.13	0.05	0.08	0.05	7.92
3200.	0.38	0.59	1.50	0.43	0.56	0.16	0.59	0.75	0.72	0.94	0.48	0.48	0.13	0.05	0.08	0.05	7.92
3250.	0.38	0.59	1.50	0.43	0.56	0.16	0.59	0.75	0.72	0.94	0.48	0.48	0.13	0.05	0.08	0.05	7.92
3300.	0.38	0.59	1.50	0.43	0.56	0.16	0.59	0.75	0.72	0.94	0.48	0.48	0.13	0.05	0.08	0.05	7.92
3350.	0.38	0.59	1.50	0.43	0.56	0.16	0.59	0.75	0.72	0.94	0.48	0.48	0.13	0.05	0.08	0.05	7.92
3400.	0.38	0.59	1.50	0.43	0.56	0.16	0.59	0.75	0.72	0.94	0.48	0.48	0.13	0.05	0.08	0.05	7.92
3450.	0.38	0.59	1.50	0.43	0.56	0.16	0.59	0.75	0.72	0.94	0.48	0.48	0.13	0.05	0.08	0.05	7.92
3500.	0.38	0.59	1.50	0.43	0.56	0.16	0.59	0.75	0.72	0.94	0.48	0.48	0.13	0.05	0.08	0.05	7.92
3550.	0.38	0.59	1.50	0.43	0.56	0.16	0.59	0.75	0.72	0.94	0.48	0.48	0.13	0.05	0.08	0.05	7.92
3600.	0.38	0.59	1.50	0.43	0.56	0.16	0.59	0.75	0.72	0.94	0.48	0.48	0.13	0.05	0.08	0.05	7.92
3650.	0.38	0.59	1.50	0.43	0.56	0.16	0.59	0.75	0.72	0.94	0.48	0.48	0.13	0.05	0.08	0.05	7.92
3700.	0.27	0.59	1.50	0.30	0.40	0.16	0.59	0.62	0.56	0.94	0.48	0.27	0.11	0.05	0.08	0.03	6.95
3750.	0.27	0.59	1.50	0.30	0.40	0.16	0.59	0.62	0.56	0.94	0.48	0.27	0.11	0.05	0.08	0.03	6.95
3800.	0.27	0.59	1.50	0.30	0.40	0.16	0.59	0.62	0.56	0.94	0.48	0.27	0.11	0.05	0.08	0.03	6.95
3850.	0.27	0.59	1.50	0.30	0.40	0.16	0.59	0.62	0.56	0.94	0.48	0.27	0.11	0.05	0.08	0.03	6.95
3900.	0.27	0.51	1.13	0.30	0.40	0.16	0.59	0.62	0.56	0.59	0.21	0.27	0.11	0.05	0.08	0.03	5.88
3950.	0.27	0.51	1.13	0.30	0.40	0.16	0.59	0.62	0.56	0.59	0.21	0.27	0.11	0.05	0.08	0.03	5.88
4000.	0.27	0.51	1.13	0.30	0.40	0.16	0.59	0.62	0.56	0.59	0.21	0.27	0.11	0.05	0.08	0.03	5.88
4050.	0.27	0.51	1.13	0.30	0.40	0.16	0.59	0.62	0.56	0.59	0.21	0.27	0.11	0.05	0.08	0.03	5.88
4100.	0.27	0.51	1.13	0.30	0.40	0.16	0.59	0.62	0.56	0.59	0.21	0.27	0.11	0.05	0.08	0.03	5.88
4150.	0.27	0.51	1.13	0.30	0.40	0.16	0.59	0.62	0.56	0.59	0.21	0.27	0.11	0.05	0.08	0.03	5.88
4200.	0.27	0.51	1.13	0.30	0.40	0.16	0.59	0.62	0.56	0.59	0.21	0.27	0.11	0.05	0.08	0.03	5.88
4250.	0.27	0.51	1.13	0.30	0.40	0.16	0.59	0.62	0.56	0.59	0.21	0.27	0.11	0.05	0.08	0.03	5.88
4300.	0.27	0.51	1.13	0.30	0.40	0.16	0.59	0.62	0.56	0.59	0.21	0.27	0.11	0.05	0.08	0.03	5.88
4350.	0.27	0.51	1.13	0.30	0.40	0.16	0.59	0.62	0.56	0.59	0.21	0.27	0.11	0.05	0.08	0.03	5.88
4400.	0.27	0.51	1.13	0.30	0.40	0.16	0.59	0.62	0.56	0.59	0.21	0.27	0.11	0.05	0.08	0.03	5.88
4450.	0.27	0.51	1.13	0.30	0.40	0.16	0.59	0.62	0.56	0.59	0.21	0.27	0.11	0.05	0.08	0.03	5.88
4500.	0.27	0.51	1.13	0.30	0.40	0.16	0.59	0.62	0.56	0.59	0.21	0.27	0.11	0.05	0.08	0.03	5.88
4550.	0.27	0.51	1.13	0.30	0.40	0.16	0.59	0.62	0.56	0.59	0.21	0.27	0.11	0.05	0.08	0.03	5.88
4600.	0.19	0.51	1.13	0.19	0.24	0.16	0.59	0.38	0.35	0.59	0.21	0.16	0.08	0.05	0.08	0.03	4.94
4650.	0.19	0.51	1.13	0.19	0.24	0.16	0.59	0.38	0.35	0.59	0.21	0.16	0.08	0.05	0.08	0.03	4.94
4700.	0.19	0.51	1.13	0.19	0.24	0.16	0.59	0.38	0.35	0.59	0.21	0.16	0.08	0.05	0.08	0.03	4.94
4750.	0.19	0.51	1.13	0.19	0.24	0.16	0.59	0.38	0.35	0.59	0.21	0.16	0.08	0.05	0.08	0.03	4.94
4800.	0.19	0.51	1.13	0.19	0.24	0.16	0.59	0.38	0.35	0.59	0.21	0.16	0.08	0.05	0.08	0.03	4.94
4850.	0.19	0.51	1.13	0.19	0.24	0.16	0.59	0.38	0.35	0.59	0.21	0.16	0.08	0.05	0.08	0.03	4.94
4900.	0.19	0.51	1.13	0.19	0.24	0.16	0.59	0.38	0.35	0.59	0.21	0.16	0.08	0.05	0.08	0.03	4.94
4950.	0.19	0.51	1.13	0.19	0.24	0.16	0.59	0.38	0.35	0.59	0.21	0.16	0.08	0.05	0.08	0.03	4.94
5000.	0.19	0.51	1.13	0.19	0.24	0.16	0.59	0.38	0.35	0.59	0.21	0.16	0.08	0.05	0.08	0.03	4.94

PLUME HEIGHT FREQUENCY TABLE

CIRCULAR MECHANICAL DRAFT COOLING TOWERS - CATAWBA NUCLEAR STATION

SEASON=SPRING

HEIGHT FROM TOWER (M)	WIND FROM N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	SUM
	PLUME HEADED S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	SUM
10.	5.69	5.64	9.05	4.30	3.95	2.68	5.34	6.52	5.69	16.21	13.50	6.98	4.86	2.95	3.38	3.25	100.00
20.	5.69	5.64	9.05	4.30	3.95	2.68	5.34	6.52	5.69	16.21	13.50	6.98	4.86	2.95	3.38	3.25	100.00
30.	5.69	5.64	9.05	4.30	3.95	2.68	5.34	6.52	5.69	16.21	13.50	6.98	4.86	2.95	3.38	3.25	100.00
40.	5.69	5.64	9.05	4.30	3.95	2.68	5.34	6.52	5.69	16.21	13.50	6.98	4.86	2.95	3.38	3.25	100.00
50.	5.69	5.64	9.05	4.27	3.92	2.68	5.34	6.52	5.66	16.21	13.48	6.74	4.81	2.90	3.38	3.25	99.54
60.	5.69	5.64	9.05	4.27	3.92	2.68	5.34	6.52	5.66	16.19	12.81	6.74	4.81	2.90	3.38	3.25	98.84
70.	5.69	5.64	9.05	4.27	3.92	2.68	5.34	6.52	5.66	16.19	12.81	6.74	4.81	2.90	3.38	3.25	98.84
80.	5.05	5.64	9.05	3.73	3.28	2.28	4.16	5.37	4.89	16.19	12.81	5.34	3.46	2.31	2.79	2.87	89.20
90.	5.05	4.03	7.36	3.73	3.28	2.28	4.16	5.37	4.89	11.28	8.35	5.34	3.46	2.31	2.79	2.87	76.53
100.	3.54	3.95	7.33	2.68	2.15	2.07	3.68	3.79	3.11	10.36	7.92	3.60	2.20	1.74	2.17	1.40	61.69
110.	1.88	3.95	7.33	1.29	1.42	1.80	3.06	2.55	2.09	10.36	7.92	2.15	1.13	1.40	1.61	0.43	50.36
120.	1.88	3.92	7.33	1.29	1.42	0.86	1.56	2.55	2.09	10.23	7.84	2.15	1.13	0.43	0.51	0.43	45.61
130.	1.88	3.92	7.33	1.29	1.42	0.64	1.29	2.55	2.09	10.23	7.84	2.15	1.13	0.40	0.51	0.43	45.10
140.	1.88	3.25	6.79	1.29	1.42	0.64	1.29	2.55	2.09	9.23	6.60	2.15	1.13	0.40	0.51	0.43	41.66
150.	1.72	2.23	5.05	1.21	1.37	0.59	1.26	2.36	2.01	6.74	4.30	1.96	1.07	0.32	0.40	0.30	32.89
160.	1.58	2.12	4.94	1.15	1.18	0.59	1.26	2.09	1.91	6.39	4.00	1.77	0.91	0.32	0.40	0.21	30.84
170.	1.50	2.12	4.94	1.07	1.05	0.59	1.26	1.91	1.69	6.39	4.00	1.66	0 70	0.32	0.40	0.21	29.82
180.	1.50	2.12	4.94	1.07	1.05	0.40	1.07	1.91	1.69	6.39	4.00	1.66	0.70	0.27	0.24	0.21	29.23
190.	1.50	2.12	4.94	1.07	1.05	0.40	1.07	1.91	1.69	6.39	4.00	1.66	0.70	0.27	0.24	0.21	29.23
200.	1.50	2.12	4.94	1.07	1.05	0.40	1.07	1.91	1.69	6.39	4.00	1.66	0.70	0.27	0.24	0.21	29.23
210.	1.50	1.88	4.54	1.07	1.05	0.40	1.07	1.91	1.69	5.96	3.62	1.66	0.70	0.27	0.24	0.21	27.78
220.	1.50	1.88	4.54	1.07	1.05	0.40	1.07	1.91	1.69	5.96	3.62	1.66	0.70	0.27	0.24	0.21	27.78
230.	1.50	1.88	4.54	1.07	1.05	0.40	1.07	1.91	1.69	5.96	3.62	1.66	0.70	0.27	0.24	0.21	27.78
240.	1.50	1.88	4.54	1.07	1.05	0.40	1.07	1.91	1.69	5.96	3.62	1.66	0.70	0.27	0.24	0.21	27.78
250.	1.50	1.88	4.54	1.07	1.05	0.38	0.97	1.91	1.69	5.96	3.62	1.66	0.70	0.21	0.19	0.21	27.54
260.	1.50	1.88	4.48	1.07	1.05	0.38	0.97	1.91	1.69	5.91	3.62	1.66	0.70	0.21	0.19	0.21	27.44
270.	1.50	1.80	4.16	1.07	1.05	0.38	0.97	1.91	1.69	5.45	3.33	1.66	0.70	0.21	0.19	0.21	26.28
280.	1.50	1.80	4.16	1.07	1.05	0.38	0.97	1.91	1.69	5.45	3.33	1.66	0.70	0.21	0.19	0.21	26.28
290.	1.50	1.80	4.16	1.07	1.05	0.38	0.97	1.91	1.69	5.45	3.33	1.66	0.70	0.21	0.19	0.21	26.28
300.	1.50	1.69	3.76	1.07	1.05	0.38	0.97	1.91	1.69	5.02	3.06	1.66	0.70	0.21	0.19	0.21	25.07
310.	1.48	1.69	3.76	1.07	1.02	0.38	0.97	1.85	1.66	5.02	3.06	1.64	0.70	0.21	0.19	0.21	24.91
320.	1.48	1.69	3.76	1.07	1.02	0.38	0.97	1.85	1.66	5.02	3.06	1.64	0.70	0.21	0.19	0.21	24.91
330.	1.48	1.69	3.76	1.07	1.02	0.38	0.97	1.85	1.66	5.02	3.06	1.64	0.70	0.21	0.19	0.21	24.91
340.	1.48	1.69	3.76	1.07	1.02	0.38	0.97	1.85	1.66	5.02	3.06	1.64	0.70	0.21	0.19	0.21	24.91
350.	1.48	1.69	3.76	1.07	1.02	0.38	0.97	1.85	1.66	5.02	3.06	1.64	0.70	0.21	0.19	0.21	24.91
360.	1.48	1.69	3.76	1.07	1.02	0.38	0.97	1.85	1.66	5.02	3.06	1.64	0.70	0.21	0.19	0.21	24.91
370.	1.48	1.69	3.76	1.07	1.02	0.38	0.97	1.85	1.66	5.02	3.06	1.64	0.70	0.21	0.19	0.21	24.91
380.	1.48	1.69	3.76	1.07	1.02	0.38	0.97	1.85	1.66	5.02	3.06	1.64	0.70	0.21	0.19	0.21	24.91
390.	1.48	1.69	3.76	1.07	1.02	0.38	0.97	1.85	1.66	5.02	3.06	1.64	0.70	0.21	0.19	0.21	24.91
400.	1.48	1.69	3.76	1.07	1.02	0.38	0.97	1.85	1.66	5.02	3.06	1.64	0.70	0.21	0.19	0.21	24.91
410.	1.48	1.69	3.76	1.07	1.02	0.38	0.97	1.85	1.66	5.02	3.06	1.64	0.70	0.21	0.19	0.21	24.91
420.	1.48	1.69	3.76	1.07	1.02	0.38	0.97	1.85	1.66	5.02	3.06	1.64	0.70	0.21	0.19	0.21	24.91
430.	1.48	1.69	3.76	1.07	1.02	0.38	0.97	1.85	1.66	5.02	3.06	1.64	0.70	0.21	0.19	0.21	24.91
440.	1.48	1.69	3.76	1.07	1.02	0.38	0.97	1.85	1.66	5.02	3.06	1.64	0.70	0.21	0.19	0.21	24.91
450.	1.48	1.69	3.76	1.07	1.02	0.38	0.97	1.85	1.66	5.02	3.06	1.64	0.70	0.21	0.19	0.21	24.91
460.	1.48	1.69	3.76	1.07	1.02	0.38	0.97	1.80	1.66	5.02	3.06	1.64	0.70	0.21	0.19	0.21	24.86
470.	1.48	1.42	3.30	1.07	1.02	0.38	0.97	1.80	1.66	4.27	2.55	1.64	0.70	0.21	0.19	0.21	22.87
480.	1.48	0.81	1.93	1.07	1.02	0.38	0.97	1.80	1.66	1.83	1.21	1.64	0.70	0.21	0.19	0.21	17.10
490.	1.48	0.81	1.93	1.07	1.02	0.16	0.59	1.80	1.66	1.83	1.21	1.64	0.70	0.05	0.08	0.21	16.24
500.	1.32	0.75	1.64	1.02	0.97	0.16	0.59	1.58	1.50	1.58	0.89	1.45	0.67	0.05	0.08	0.21	14.47

PLUME HEIGHT FREQUENCY TABLE

CIRCULAR MECHANICAL DRAFT COOLING TOWERS - CATAWBA NUCLEAR STATION

SEASON=SPRING

HEIGHT FROM TOWER (M)	WIND FROM N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	SUM
	PLUME HEADED S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	SUM
510.	0.70	0.67	1.26	0.46	0.59	0.16	0.59	0.83	0.86	1.23	0.62	0.72	0.27	0.05	0.08	0.08	9.18
520.	0.35	0.67	1.26	0.43	0.54	0.16	0.59	0.64	0.70	1.23	0.62	0.46	0.13	0.05	0.08	0.05	7.97
530.	0.35	0.67	1.26	0.43	0.54	0.16	0.59	0.64	0.70	1.23	0.62	0.46	0.13	0.05	0.08	0.05	7.97
540.	0.24	0.38	0.91	0.30	0.38	0.16	0.59	0.51	0.54	1.07	0.56	0.24	0.11	0.05	0.08	0.03	6.15
550.	0.24	0.21	0.72	0.30	0.38	0.16	0.59	0.51	0.54	0.38	0.16	0.24	0.11	0.05	0.08	0.03	4.70
560.	0.24	0.21	0.72	0.30	0.38	0.16	0.59	0.51	0.54	0.38	0.16	0.24	0.11	0.05	0.08	0.03	4.70
570.	0.24	0.21	0.72	0.30	0.38	0.16	0.59	0.51	0.54	0.38	0.16	0.24	0.11	0.05	0.08	0.03	4.70
580.	0.16	0.00	0.00	0.19	0.21	0.13	0.56	0.27	0.32	0.00	0.00	0.13	0.08	0.05	0.05	0.03	2.20
590.	0.16	0.00	0.00	0.19	0.21	0.13	0.56	0.27	0.32	0.00	0.00	0.13	0.08	0.05	0.05	0.03	2.20
600.	0.16	0.00	0.00	0.19	0.21	0.13	0.56	0.27	0.32	0.00	0.00	0.13	0.08	0.05	0.05	0.03	2.20
610.	0.16	0.00	0.00	0.19	0.21	0.13	0.56	0.27	0.32	0.00	0.00	0.13	0.08	0.05	0.05	0.03	2.20
620.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
630.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
640.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
650.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
660.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
670.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
680.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
690.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
700.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
710.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
720.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
730.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
740.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
750.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
760.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
770.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
780.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
790.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
800.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
810.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
820.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
830.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
840.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
850.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
860.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
870.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
880.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
890.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
900.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
910.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
920.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
930.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
940.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
950.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
960.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
970.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
980.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
990.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1000.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

********** PLUME RADIUS FREQUENCY TABLE **********

CIRCULAR MECHANICAL DRAFT COOLING TOWERS - CATAWBA NUCLEAR STATION

SEASON=SPRING

MAXIMUM FROM TOWER (M)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	SUM
	WIND FROM																
	PLUME HEADED																
	S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	SUM
5.	5.69	5.64	9.05	4.30	3.95	2.68	5.34	6.52	5.69	16.21	13.50	6.98	4.86	2.95	3.38	3.25	100.00
10.	5.69	5.64	9.05	4.30	3.95	2.68	5.34	6.52	5.69	16.21	13.50	6.98	4.86	2.95	3.38	3.25	100.00
15.	5.69	5.64	9.05	4.30	3.95	2.68	5.34	6.52	5.69	16.21	13.50	6.98	4.86	2.95	3.38	3.25	100.00
20.	5.69	5.64	9.05	4.30	3.95	2.68	5.34	6.52	5.69	16.21	13.50	6.98	4.86	2.95	3.38	3.25	100.00
25.	5.05	5.64	9.05	3.73	3.28	2.28	4.16	5.37	4.89	16.21	13.50	5.34	3.46	2.36	2.79	2.87	89.98
30.	4.24	4.67	8.08	3.41	2.74	2.07	3.68	4.70	3.97	13.29	9.93	4.54	2.87	1.74	2.17	2.12	74.23
35.	4.24	3.95	7.33	3.41	2.74	2.07	3.68	4.70	3.97	10.36	7.95	4.54	2.87	1.74	2.17	2.12	67.84
40.	3.70	3.95	7.33	3.22	2.47	1.80	3.41	4.24	3.46	10.36	7.92	4.13	2.60	1.64	1.88	1.77	63.89
45.	3.19	3.95	7.33	2.63	2.28	1.72	3.01	3.73	3.09	10.36	7.92	3.54	2.12	1.21	1.40	1.34	58.82
50.	2.39	3.95	7.33	1.74	1.64	1.42	2.58	2.95	2.36	10.36	7.92	2.52	1.40	0.86	0.83	0.59	50.84
55.	2.07	3.95	7.33	1.42	1.56	1.32	2.50	2.71	2.20	10.36	7.92	2.28	1.29	0.64	0.72	0.51	48.78
60.	1.72	3.52	7.03	1.21	1.37	1.32	2.50	2.36	2.01	9.77	7.03	1.96	1.07	0.64	0.72	0.30	44.54
65.	1.72	3.09	6.55	1.21	1.37	1.32	2.50	2.36	2.01	9.15	6.47	1.96	1.07	0.64	0.72	0.30	42.44
70.	1.50	2.95	6.23	1.07	1.05	1.32	2.50	1.91	1.69	8.67	5.99	1.66	0.70	0.64	0.72	0.21	38.82
75.	1.50	2.71	5.69	1.07	1.05	1.10	2.20	1.91	1.69	7.81	5.05	1.66	0.70	0.54	0.51	0.21	35.41
80.	1.50	2.12	4.94	1.07	1.05	1.10	2.20	1.91	1.69	6.39	4.00	1.66	0.70	0.54	0.51	0.21	31.60
85.	1.50	1.88	4.54	1.07	1.05	0.83	1.45	1.91	1.69	5.96	3.62	1.66	0.70	0.27	0.24	0.21	28.59
90.	1.50	1.69	3.81	1.07	1.05	0.83	1.45	1.91	1.69	5.07	3.06	1.66	0.70	0.27	0.24	0.21	26.23
95.	1.50	1.42	3.60	1.07	1.05	0.83	1.45	1.91	1.69	4.62	2.77	1.66	0.70	0.27	0.24	0.21	24.99
100.	1.50	1.42	3.60	1.07	1.05	0.78	1.32	1.91	1.69	4.62	2.77	1.66	0.70	0.19	0.19	0.21	24.67
105.	1.50	1.26	3.33	1.07	1.05	0.78	1.32	1.91	1.69	4.11	2.63	1.66	0.70	0.19	0.19	0.21	23.60
110.	1.50	1.10	3.09	1.07	1.05	0.78	1.32	1.91	1.69	3.76	2.47	1.66	0.70	0.19	0.19	0.21	22.68
115.	1.50	1.10	3.09	1.07	1.05	0.54	1.10	1.91	1.69	3.76	2.47	1.66	0.70	0.16	0.13	0.21	22.15
120.	1.48	1.10	3.09	1.07	1.02	0.54	1.10	1.85	1.66	3.76	2.47	1.64	0.70	0.16	0.13	0.21	21.99
125.	1.48	1.10	3.09	1.07	1.02	0.54	1.10	1.85	1.66	3.76	2.47	1.64	0.70	0.16	0.13	0.21	21.99
130.	1.48	1.10	3.09	1.07	1.02	0.54	1.10	1.85	1.66	3.76	2.47	1.64	0.70	0.16	0.13	0.21	21.99
135.	1.32	1.10	3.03	0.91	0.97	0.54	1.10	1.64	1.50	3.70	2.47	1.34	0.67	0.16	0.13	0.21	20.81
140.	1.32	1.10	3.03	0.91	0.97	0.54	1.10	1.64	1.50	3.70	2.47	1.34	0.67	0.16	0.13	0.21	20.81
145.	1.32	1.10	3.03	0.91	0.97	0.54	1.10	1.64	1.50	3.70	2.47	1.34	0.67	0.16	0.13	0.21	20.81
150.	1.32	1.10	3.03	0.91	0.97	0.54	1.10	1.64	1.50	3.70	2.47	1.34	0.67	0.16	0.13	0.21	20.81
155.	1.23	1.10	3.03	0.70	0.86	0.38	0.97	1.42	1.40	3.70	2.47	1.23	0.51	0.16	0.13	0.16	19.46
160.	1.23	1.10	3.03	0.70	0.86	0.38	0.97	1.42	1.40	3.70	2.47	1.23	0.51	0.16	0.13	0.16	19.46
165.	1.07	1.10	3.03	0.64	0.81	0.38	0.97	1.21	1.23	3.70	2.47	1.05	0.48	0.16	0.13	0.16	18.60
170.	1.07	1.05	2.77	0.64	0.81	0.38	0.97	1.21	1.23	3.14	2.17	1.05	0.48	0.16	0.13	0.16	17.42
175.	1.07	1.05	2.77	0.64	0.81	0.32	0.83	1.21	1.23	3.14	2.17	1.05	0.48	0.13	0.13	0.16	17.21
180.	1.07	0.78	2.36	0.64	0.81	0.30	0.70	1.21	1.23	2.04	1.42	1.05	0.48	0.11	0.08	0.16	14.44
185.	1.07	0.78	2.36	0.64	0.81	0.30	0.70	1.21	1.23	2.04	1.42	1.05	0.48	0.11	0.08	0.16	14.44
190.	1.07	0.78	2.36	0.64	0.81	0.30	0.70	1.21	1.23	2.04	1.42	1.05	0.48	0.11	0.08	0.16	14.44
195.	1.07	0.78	2.36	0.64	0.81	0.30	0.70	1.21	1.23	2.04	1.42	1.05	0.48	0.11	0.08	0.16	14.44
200.	0.91	0.78	2.36	0.56	0.75	0.30	0.70	0.97	1.18	2.04	1.42	0.86	0.38	0.11	0.08	0.13	13.53
205.	0.91	0.78	2.36	0.56	0.75	0.30	0.70	0.97	1.18	2.04	1.42	0.86	0.38	0.11	0.08	0.13	13.53
210.	0.91	0.75	2.09	0.56	0.75	0.16	0.59	0.97	1.18	1.61	1.13	0.86	0.38	0.05	0.08	0.13	12.21
215.	0.91	0.75	2.09	0.56	0.75	0.16	0.59	0.97	1.18	1.61	1.13	0.86	0.38	0.05	0.08	0.13	12.21
220.	0.91	0.75	2.09	0.56	0.75	0.16	0.59	0.97	1.18	1.61	1.13	0.86	0.38	0.05	0.08	0.13	12.21
225.	0.91	0.75	2.09	0.56	0.75	0.16	0.59	0.97	1.18	1.61	1.13	0.86	0.38	0.05	0.08	0.13	12.21
230.	0.70	0.75	2.09	0.46	0.59	0.16	0.59	0.89	0.86	1.61	1.13	0.72	0.27	0.05	0.08	0.08	11.03
235.	0.70	0.75	2.09	0.46	0.59	0.16	0.59	0.89	0.86	1.61	1.13	0.72	0.27	0.05	0.08	0.08	11.03
240.	0.70	0.64	1.74	0.46	0.59	0.16	0.59	0.89	0.86	1.13	0.81	0.72	0.27	0.05	0.08	0.08	9.77
245.	0.70	0.64	1.74	0.46	0.59	0.16	0.59	0.89	0.86	1.13	0.81	0.72	0.27	0.05	0.08	0.08	9.77
250.	0.70	0.64	1.74	0.46	0.59	0.16	0.59	0.89	0.86	1.13	0.81	0.72	0.27	0.05	0.08	0.08	9.77

PLUME RADIUS FREQUENCY TABLE

CIRCULAR MECHANICAL DRAFT COOLING TOWERS - CATAWBA NUCLEAR STATION

SEASON=SPRING

MAXIMUM FROM TOWER (M)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	SUM
	WIND FROM PLUME HEADED																
	S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	SUM
255.	0.70	0.64	1.74	0.46	0.59	0.16	0.59	0.89	0.86	1.13	0.81	0.72	0.27	0.05	0.08	0.08	9.77
260.	0.70	0.64	1.74	0.46	0.59	0.16	0.59	0.89	0.86	1.13	0.81	0.72	0.27	0.05	0.08	0.08	9.77
265.	0.70	0.64	1.74	0.46	0.59	0.16	0.59	0.89	0.86	1.13	0.81	0.72	0.27	0.05	0.08	0.08	9.77
270.	0.70	0.64	1.74	0.46	0.59	0.16	0.59	0.89	0.86	1.13	0.81	0.72	0.27	0.05	0.08	0.08	9.77
275.	0.35	0.64	1.74	0.43	0.54	0.16	0.59	0.70	0.70	1.13	0.81	0.46	0.13	0.05	0.08	0.05	8.56
280.	0.35	0.59	1.45	0.43	0.54	0.16	0.59	0.70	0.70	0.89	0.48	0.46	0.13	0.05	0.08	0.05	7.65
285.	0.35	0.59	1.45	0.43	0.54	0.16	0.59	0.70	0.70	0.89	0.48	0.46	0.13	0.05	0.08	0.05	7.65
290.	0.35	0.59	1.45	0.43	0.54	0.16	0.59	0.70	0.70	0.89	0.48	0.46	0.13	0.05	0.08	0.05	7.65
295.	0.35	0.59	1.45	0.43	0.54	0.16	0.59	0.70	0.70	0.89	0.48	0.46	0.13	0.05	0.08	0.05	7.65
300.	0.35	0.59	1.45	0.43	0.54	0.16	0.59	0.70	0.70	0.89	0.48	0.46	0.13	0.05	0.08	0.05	7.65
305.	0.35	0.59	1.45	0.43	0.54	0.16	0.59	0.70	0.70	0.89	0.48	0.46	0.13	0.05	0.08	0.05	7.65
310.	0.35	0.59	1.45	0.43	0.54	0.16	0.59	0.70	0.70	0.89	0.48	0.46	0.13	0.05	0.08	0.05	7.65
315.	0.24	0.59	1.45	0.30	0.38	0.16	0.59	0.56	0.54	0.89	0.48	0.24	0.11	0.05	0.08	0.03	6.68
320.	0.24	0.59	1.45	0.30	0.38	0.16	0.59	0.56	0.54	0.89	0.48	0.24	0.11	0.05	0.08	0.03	6.68
325.	0.24	0.51	1.07	0.30	0.38	0.16	0.59	0.56	0.54	0.54	0.21	0.24	0.11	0.05	0.08	0.03	5.61
330.	0.24	0.51	1.07	0.30	0.38	0.16	0.59	0.56	0.54	0.54	0.21	0.24	0.11	0.05	0.08	0.03	5.61
335.	0.24	0.51	1.07	0.30	0.38	0.16	0.59	0.56	0.54	0.54	0.21	0.24	0.11	0.05	0.08	0.03	5.61
340.	0.24	0.51	1.07	0.30	0.38	0.16	0.59	0.56	0.54	0.54	0.21	0.24	0.11	0.05	0.08	0.03	5.61
345.	0.24	0.51	1.07	0.30	0.38	0.16	0.59	0.56	0.54	0.54	0.21	0.24	0.11	0.05	0.08	0.03	5.61
350.	0.24	0.51	1.07	0.30	0.38	0.16	0.59	0.56	0.54	0.54	0.21	0.24	0.11	0.05	0.08	0.03	5.61
355.	0.24	0.51	1.07	0.30	0.38	0.16	0.59	0.56	0.54	0.54	0.21	0.24	0.11	0.05	0.08	0.03	5.61
360.	0.24	0.51	1.07	0.30	0.38	0.16	0.59	0.56	0.54	0.54	0.21	0.24	0.11	0.05	0.08	0.03	5.61
365.	0.24	0.51	1.07	0.30	0.38	0.16	0.59	0.56	0.54	0.54	0.21	0.24	0.11	0.05	0.08	0.03	5.61
370.	0.24	0.51	1.07	0.30	0.38	0.16	0.59	0.56	0.54	0.54	0.21	0.24	0.11	0.05	0.08	0.03	5.61
375.	0.24	0.51	1.07	0.30	0.38	0.16	0.59	0.56	0.54	0.54	0.21	0.24	0.11	0.05	0.08	0.03	5.61
380.	0.24	0.51	1.07	0.30	0.38	0.16	0.59	0.56	0.54	0.54	0.21	0.24	0.11	0.05	0.08	0.03	5.61
385.	0.24	0.51	1.07	0.30	0.38	0.16	0.59	0.56	0.54	0.54	0.21	0.24	0.11	0.05	0.08	0.03	5.61
390.	0.24	0.51	1.07	0.30	0.38	0.16	0.59	0.56	0.54	0.54	0.21	0.24	0.11	0.05	0.08	0.03	5.61
395.	0.24	0.51	1.07	0.30	0.38	0.16	0.59	0.56	0.54	0.54	0.21	0.24	0.11	0.05	0.08	0.03	5.61
400.	0.24	0.51	1.07	0.30	0.38	0.16	0.59	0.56	0.54	0.54	0.21	0.24	0.11	0.05	0.08	0.03	5.61
405.	0.24	0.51	1.07	0.30	0.38	0.16	0.59	0.56	0.54	0.54	0.21	0.24	0.11	0.05	0.08	0.03	5.61
410.	0.16	0.51	1.07	0.19	0.21	0.16	0.59	0.32	0.32	0.54	0.21	0.13	0.08	0.05	0.08	0.03	4.67
415.	0.16	0.51	1.07	0.19	0.21	0.13	0.56	0.32	0.32	0.54	0.21	0.13	0.08	0.05	0.05	0.03	4.59
420.	0.16	0.51	1.07	0.19	0.21	0.13	0.56	0.32	0.32	0.54	0.21	0.13	0.08	0.05	0.05	0.03	4.59
425.	0.16	0.51	1.07	0.19	0.21	0.13	0.56	0.32	0.32	0.54	0.21	0.13	0.08	0.05	0.05	0.03	4.59
430.	0.16	0.21	0.72	0.19	0.21	0.13	0.56	0.32	0.32	0.38	0.16	0.13	0.08	0.05	0.05	0.03	3.73
435.	0.16	0.21	0.72	0.19	0.21	0.13	0.56	0.32	0.32	0.38	0.16	0.13	0.08	0.05	0.05	0.03	3.73
440.	0.16	0.21	0.72	0.19	0.21	0.13	0.56	0.32	0.32	0.38	0.16	0.13	0.08	0.05	0.05	0.03	3.73
445.	0.16	0.21	0.72	0.19	0.21	0.13	0.56	0.32	0.32	0.38	0.16	0.13	0.08	0.05	0.05	0.03	3.73
450.	0.16	0.21	0.72	0.19	0.21	0.13	0.56	0.32	0.32	0.38	0.16	0.13	0.08	0.05	0.05	0.03	3.73
455.	0.16	0.21	0.72	0.19	0.21	0.13	0.56	0.32	0.32	0.38	0.16	0.13	0.08	0.05	0.05	0.03	3.73
460.	0.16	0.21	0.72	0.19	0.21	0.13	0.56	0.32	0.32	0.38	0.16	0.13	0.08	0.05	0.05	0.03	3.73
465.	0.16	0.21	0.72	0.19	0.21	0.13	0.56	0.32	0.32	0.38	0.16	0.13	0.08	0.05	0.05	0.03	3.73
470.	0.16	0.21	0.72	0.19	0.21	0.13	0.56	0.32	0.32	0.38	0.16	0.13	0.08	0.05	0.05	0.03	3.73
475.	0.16	0.21	0.72	0.19	0.21	0.13	0.56	0.32	0.32	0.38	0.16	0.13	0.08	0.05	0.05	0.03	3.73
480.	0.16	0.21	0.72	0.19	0.21	0.13	0.56	0.32	0.32	0.38	0.16	0.13	0.08	0.05	0.05	0.03	3.73
485.	0.16	0.21	0.72	0.19	0.21	0.13	0.56	0.32	0.32	0.38	0.16	0.13	0.08	0.05	0.05	0.03	3.73
490.	0.16	0.21	0.72	0.19	0.21	0.13	0.56	0.32	0.32	0.38	0.16	0.13	0.08	0.05	0.05	0.03	3.73
495.	0.16	0.21	0.72	0.19	0.21	0.13	0.56	0.27	0.32	0.38	0.16	0.13	0.08	0.05	0.05	0.03	3.68
500.	0.16	0.21	0.72	0.19	0.21	0.13	0.56	0.27	0.32	0.38	0.16	0.13	0.08	0.05	0.05	0.03	3.68

HOURS OF PLUME FOGGING TABLE

CIRCULAR MECHANICAL DRAFT COOLING TOWERS - CATAWBA NUCLEAR STATION

SEASON=SPRING

DISTANCE FROM TOWER (M)	WIND FROM N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	AVG
	PLUME HEADED S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	AVG
100.		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200.		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
300.		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
400.		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
500.		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
600.		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
700.		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
800.		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
900.		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1000.		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1100.		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1200.		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1300.		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1400.		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1500.		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1600.		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

********** HOURS OF RIME ICING TABLE **********

CIRCULAR MECHANICAL DRAFT COOLING TOWERS - CATAWBA NUCLEAR STATION

SEASON=SPRING

DISTANCE FROM TOWER (M)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	AVG
	********** WIND FROM PLUME HEADED **********																
	S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	AVG
100.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
300.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
400.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
500.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
600.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
700.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
800.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
900.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1000.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1100.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1200.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1300.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1400.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1500.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1600.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

********** FREQUENCY PERCENTAGE BY CATEGORY AND WIND DIRECTION **********

CIRCULAR MECHANICAL DRAFT COOLING TOWERS - CATAWBA NUCLEAR STATION

SEASON=SUMMER

CATEGORY NUMBER	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
	********** WIND FROM ********** PLUME HEADED **********															
	S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	SUM
11	0.80	1.73	2.61	1.13	1.03	1.00	1.38	1.83	1.56	3.49	5.50	1.93	1.58	0.65	0.48	0.38	27.08
12	1.13	1.53	1.93	0.98	1.05	0.70	0.95	1.33	1.08	2.78	1.86	1.03	0.78	0.28	0.40	0.55	18.36
13	0.05	0.10	0.03	0.08	0.18	0.10	0.18	0.30	0.23	0.33	0.30	0.35	0.33	0.18	0.28	0.13	3.11
14	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.03	0.00	0.00	0.10
15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.03
16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17	0.03	0.08	0.10	0.05	0.08	0.10	0.00	0.00	0.08	0.15	0.28	0.05	0.05	0.03	0.00	0.03	1.08
18	0.15	0.28	0.48	0.15	0.10	0.08	0.13	0.25	0.10	0.35	0.33	0.18	0.13	0.03	0.05	0.05	2.81
19	0.05	0.05	0.05	0.05	0.05	0.03	0.00	0.15	0.05	0.08	0.10	0.03	0.10	0.13	0.05	0.13	1.08
20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
21	0.08	0.20	0.33	0.25	0.18	0.20	0.08	0.18	0.15	0.68	0.25	0.10	0.05	0.03	0.05	0.08	2.86
22	0.20	0.23	0.43	0.05	0.23	0.10	0.10	0.25	0.38	0.93	0.25	0.20	0.10	0.28	0.08	0.15	3.94
23	0.15	0.15	0.15	0.08	0.15	0.13	0.15	0.20	0.25	0.45	0.43	0.08	0.25	0.10	0.13	0.15	2.98
24	0.25	0.10	0.33	0.10	0.10	0.03	0.10	0.25	0.23	0.50	0.20	0.13	0.08	0.08	0.15	0.05	2.66
25	0.15	0.25	0.38	0.08	0.13	0.03	0.05	0.28	0.18	0.45	0.33	0.08	0.15	0.10	0.08	0.15	2.83
26	0.23	0.23	0.53	0.13	0.13	0.00	0.10	0.25	0.30	0.80	0.45	0.20	0.10	0.08	0.10	0.10	3.71
27	0.15	0.20	0.13	0.03	0.00	0.08	0.13	0.10	0.08	0.43	0.33	0.10	0.10	0.03	0.05	0.03	1.93
28	0.28	0.25	0.33	0.18	0.10	0.05	0.15	0.18	0.23	0.68	0.25	0.18	0.08	0.00	0.03	0.13	3.06
29	0.18	0.18	0.23	0.08	0.18	0.08	0.03	0.10	0.10	0.63	0.30	0.13	0.10	0.08	0.08	0.05	2.48
30	0.18	0.13	0.20	0.08	0.03	0.10	0.03	0.13	0.08	0.25	0.10	0.08	0.08	0.00	0.00	0.05	1.48
31	0.20	0.15	0.33	0.13	0.23	0.08	0.05	0.10	0.23	0.85	0.58	0.10	0.10	0.03	0.05	0.08	3.26
32	0.15	0.10	0.13	0.15	0.08	0.00	0.08	0.05	0.08	0.33	0.13	0.15	0.13	0.03	0.00	0.03	1.58
33	0.13	0.10	0.10	0.05	0.03	0.03	0.03	0.10	0.05	0.28	0.28	0.08	0.10	0.00	0.03	0.00	1.35
34	0.10	0.25	0.18	0.08	0.08	0.03	0.18	0.23	0.23	0.33	0.25	0.05	0.05	0.03	0.03	0.03	2.08
35	0.13	0.13	0.13	0.08	0.05	0.03	0.03	0.20	0.05	0.40	0.25	0.05	0.13	0.05	0.03	0.08	1.78
36	0.08	0.08	0.05	0.03	0.03	0.00	0.03	0.15	0.13	0.28	0.08	0.13	0.08	0.05	0.03	0.05	1.23
37	0.05	0.05	0.23	0.08	0.05	0.05	0.05	0.08	0.08	0.30	0.13	0.20	0.00	0.10	0.00	0.05	1.48
38	0.03	0.05	0.18	0.00	0.08	0.00	0.03	0.10	0.18	0.10	0.28	0.05	0.03	0.05	0.03	0.00	1.15
39	0.05	0.08	0.20	0.03	0.05	0.03	0.00	0.00	0.10	0.15	0.10	0.00	0.08	0.05	0.00	0.03	0.93
40	0.03	0.00	0.25	0.00	0.03	0.03	0.00	0.05	0.00	0.05	0.15	0.05	0.03	0.00	0.05	0.08	0.78
41	0.00	0.03	0.28	0.03	0.00	0.00	0.05	0.08	0.05	0.20	0.10	0.08	0.08	0.05	0.00	0.00	1.03
42	0.03	0.20	0.03	0.00	0.00	0.00	0.03	0.10	0.03	0.05	0.18	0.08	0.05	0.00	0.05	0.03	0.83
43	0.03	0.05	0.00	0.00	0.00	0.00	0.03	0.03	0.00	0.20	0.33	0.18	0.03	0.00	0.00	0.05	0.90
44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.05
45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTALS	5.02	6.92	10.26	4.09	4.39	3.04	4.09	7.02	6.25	16.48	14.10	6.04	4.92	2.48	2.26	2.66	100.00

********** STABILITY CLASS BY WIND DIRECTION **********
CIRCULAR MECHANICAL DRAFT COOLING TOWERS - CATAWBA NUCLEAR STATION
SEASON=SUMMER

STABILITY CLASS	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
	WIND FROM PLUME HEADED															
	S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	STAG.
1	0.10	0.17	0.20	0.20	0.17	0.26	0.34	0.25	0.24	0.20	0.32	0.27	0.28	0.21	0.09	0.10	1.00
2	0.03	0.05	0.08	0.06	0.05	0.07	0.02	0.02	0.03	0.04	0.09	0.06	0.07	0.03	0.07	0.04	0.00
3	0.04	0.05	0.07	0.07	0.08	0.07	0.03	0.02	0.03	0.04	0.05	0.03	0.03	0.06	0.07	0.02	0.00
4	0.30	0.42	0.47	0.37	0.37	0.30	0.26	0.26	0.30	0.35	0.25	0.20	0.19	0.13	0.19	0.39	0.00
5	0.29	0.18	0.13	0.22	0.24	0.23	0.23	0.31	0.31	0.30	0.20	0.25	0.19	0.23	0.26	0.22	0.00
6	0.13	0.08	0.04	0.06	0.07	0.05	0.10	0.10	0.08	0.04	0.05	0.10	0.13	0.19	0.13	0.11	0.00
7	0.10	0.04	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.03	0.04	0.08	0.12	0.14	0.20	0.12	0.00

********** WIND SPEED DISTRIBUTION BY DIRECTION AT REFERENCE HEIGHT OF 200. METERS **********
CIRCULAR MECHANICAL DRAFT COOLING TOWERS - CATAWBA NUCLEAR STATION
SEASON=SUMMER

WIND RANGE	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
	WIND FROM PLUME HEADED															
	S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	STAG.
1	0.43	0.38	0.22	0.35	0.27	0.39	0.39	0.36	0.45	0.28	0.21	0.19	0.29	0.31	0.43	0.49	1.00
2	0.50	0.52	0.48	0.48	0.62	0.58	0.52	0.58	0.49	0.68	0.68	0.59	0.54	0.57	0.39	0.41	0.00
3	0.06	0.10	0.29	0.17	0.11	0.03	0.09	0.06	0.06	0.04	0.11	0.22	0.17	0.12	0.18	0.10	0.00

********** COMBINED FACTORS BY WIND DIRECTION **********
CIRCULAR MECHANICAL DRAFT COOLING TOWERS - CATAWBA NUCLEAR STATION
SEASON=SUMMER

COMBINED CLASS*	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
	WIND FROM PLUME HEADED															
	S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	STAG.
1	0.08	0.11	0.08	0.12	0.08	0.16	0.15	0.11	0.13	0.08	0.10	0.07	0.11	0.09	0.10	0.08	1.00
2	0.09	0.15	0.17	0.16	0.18	0.23	0.20	0.17	0.14	0.19	0.31	0.22	0.20	0.17	0.09	0.07	0.00
3	0.01	0.03	0.10	0.05	0.03	0.01	0.04	0.02	0.02	0.01	0.05	0.08	0.06	0.04	0.04	0.02	0.00
4	0.26	0.23	0.13	0.21	0.16	0.21	0.19	0.21	0.28	0.18	0.09	0.09	0.11	0.11	0.19	0.30	0.00
5	0.30	0.31	0.29	0.29	0.38	0.31	0.26	0.33	0.30	0.44	0.30	0.27	0.20	0.21	0.17	0.24	0.00
6	0.04	0.06	0.18	0.10	0.07	0.02	0.05	0.03	0.04	0.03	0.05	0.10	0.06	0.04	0.08	0.06	0.00
7	0.10	0.05	0.01	0.03	0.02	0.03	0.05	0.04	0.04	0.02	0.02	0.03	0.07	0.10	0.14	0.12	0.00
8	0.11	0.06	0.02	0.04	0.06	0.04	0.06	0.07	0.04	0.05	0.06	0.11	0.14	0.19	0.13	0.10	0.00
9	0.01	0.01	0.02	0.01	0.01	0.00	0.01	0.01	0.01	0.00	0.01	0.04	0.04	0.04	0.06	0.02	0.00

* COMBINED CLASSES ARE DEFINED AS FOLLOWS:
1=UNSTABLE, LOW WIND 2=UNSTABLE, MODERATE WIND 3=UNSTABLE, HIGH WIND
4=NEUTRAL, LOW WIND 5=NEUTRAL MODERATE WIND 6=NEUTRAL, HIGH WIND
7=STABLE, LOW WIND 8=STABLE, MODERATE WIND 9=STABLE, HIGH WIND

********** PLUME LENGTH FREQUENCY TABLE **********

CIRCULAR MECHANICAL DRAFT COOLING TOWERS - CATAWBA NUCLEAR STATION

SEASON=SUMMER

DISTANCE FROM TOWER (M)	WIND FROM N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	SUM
	PLUME HEADED S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	SUM
50.	5.02	6.92	10.26	4.09	4.39	3.04	4.09	7.02	6.25	16.48	14.10	6.04	4.92	2.48	2.26	2.66	100.00
100.	5.02	6.92	10.26	4.09	4.39	3.04	4.09	7.02	6.25	16.48	14.10	6.04	4.92	2.48	2.26	2.66	100.00
150.	3.06	3.66	5.72	1.93	2.23	1.33	1.76	3.86	3.54	10.21	6.75	3.03	2.51	1.55	1.38	1.71	54.21
200.	0.78	3.44	5.59	0.50	0.45	0.48	0.75	1.15	0.98	9.73	6.17	1.08	0.75	0.50	0.38	0.40	33.17
250.	0.50	1.55	2.48	0.30	0.35	0.25	0.43	1.00	0.85	4.39	3.26	0.85	0.53	0.25	0.15	0.38	17.53
300.	0.40	1.55	2.48	0.23	0.28	0.18	0.33	0.78	0.63	4.39	3.26	0.80	0.48	0.18	0.10	0.35	16.40
350.	0.40	1.38	2.26	0.23	0.28	0.18	0.33	0.78	0.63	3.76	2.96	0.80	0.48	0.18	0.10	0.35	15.07
400.	0.40	1.38	2.26	0.23	0.28	0.08	0.30	0.78	0.63	3.76	2.96	0.80	0.48	0.18	0.10	0.35	14.94
450.	0.40	1.25	2.06	0.23	0.28	0.08	0.30	0.78	0.63	3.51	2.86	0.80	0.48	0.18	0.10	0.35	14.27
500.	0.40	1.10	1.73	0.23	0.28	0.08	0.30	0.78	0.63	2.66	2.28	0.80	0.48	0.18	0.10	0.35	12.36
550.	0.40	1.10	1.73	0.23	0.28	0.08	0.30	0.78	0.63	2.66	2.28	0.80	0.48	0.18	0.10	0.35	12.36
600.	0.40	1.10	1.73	0.23	0.28	0.08	0.30	0.78	0.63	2.66	2.28	0.80	0.48	0.18	0.10	0.35	12.36
650.	0.40	1.10	1.73	0.23	0.28	0.08	0.30	0.78	0.63	2.66	2.28	0.80	0.48	0.18	0.10	0.35	12.36
700.	0.40	1.10	1.73	0.23	0.28	0.08	0.30	0.78	0.63	2.66	2.28	0.80	0.48	0.18	0.10	0.35	12.36
750.	0.40	1.10	1.73	0.23	0.28	0.08	0.30	0.78	0.63	2.66	2.28	0.80	0.48	0.18	0.10	0.35	12.36
800.	0.40	1.10	1.73	0.23	0.28	0.08	0.30	0.78	0.63	2.66	2.28	0.80	0.48	0.18	0.10	0.35	12.36
850.	0.40	1.10	1.73	0.23	0.28	0.08	0.30	0.78	0.63	2.66	2.28	0.80	0.48	0.18	0.10	0.35	12.36
900.	0.40	1.10	1.73	0.23	0.28	0.08	0.30	0.78	0.63	2.66	2.28	0.80	0.48	0.18	0.10	0.35	12.36
950.	0.40	1.00	1.60	0.23	0.28	0.08	0.30	0.78	0.63	2.33	2.16	0.80	0.48	0.18	0.10	0.35	11.69
1000.	0.40	0.90	1.50	0.23	0.28	0.08	0.30	0.78	0.63	2.06	1.88	0.80	0.48	0.18	0.10	0.35	10.93
1050.	0.40	0.90	1.50	0.23	0.28	0.08	0.30	0.78	0.63	2.06	1.88	0.80	0.48	0.18	0.10	0.35	10.93
1100.	0.40	0.90	1.50	0.23	0.28	0.05	0.13	0.78	0.63	2.06	1.88	0.80	0.48	0.15	0.08	0.35	10.68
1150.	0.40	0.65	1.33	0.23	0.28	0.05	0.13	0.78	0.63	1.73	1.63	0.80	0.48	0.15	0.08	0.35	9.68
1200.	0.40	0.65	1.33	0.23	0.28	0.05	0.13	0.78	0.63	1.73	1.63	0.80	0.48	0.15	0.08	0.35	9.68
1250.	0.28	0.65	1.33	0.15	0.23	0.05	0.13	0.58	0.58	1.73	1.63	0.75	0.35	0.15	0.08	0.28	8.93
1300.	0.28	0.65	1.33	0.15	0.23	0.05	0.13	0.58	0.58	1.73	1.63	0.75	0.35	0.15	0.08	0.28	8.93
1350.	0.28	0.65	1.33	0.15	0.23	0.05	0.13	0.58	0.58	1.73	1.63	0.75	0.35	0.15	0.08	0.28	8.93
1400.	0.20	0.65	1.33	0.13	0.20	0.05	0.13	0.43	0.45	1.73	1.63	0.63	0.28	0.15	0.08	0.23	8.27
1450.	0.20	0.65	1.33	0.13	0.20	0.05	0.13	0.43	0.45	1.73	1.63	0.63	0.28	0.15	0.08	0.23	8.27
1500.	0.15	0.65	1.33	0.05	0.15	0.05	0.13	0.35	0.38	1.73	1.63	0.43	0.28	0.15	0.08	0.18	7.70
1550.	0.15	0.65	1.33	0.05	0.15	0.05	0.13	0.35	0.38	1.73	1.63	0.43	0.28	0.15	0.08	0.18	7.70
1600.	0.15	0.58	1.28	0.05	0.15	0.05	0.13	0.35	0.38	1.45	1.55	0.43	0.28	0.15	0.08	0.18	7.22
1650.	0.15	0.53	1.05	0.05	0.15	0.00	0.08	0.35	0.38	1.15	1.43	0.43	0.28	0.05	0.08	0.18	6.32
1700.	0.15	0.53	1.05	0.05	0.15	0.00	0.08	0.35	0.38	1.15	1.43	0.43	0.28	0.05	0.08	0.18	6.32
1750.	0.13	0.53	1.05	0.05	0.08	0.00	0.08	0.25	0.20	1.15	1.43	0.38	0.25	0.05	0.08	0.18	5.87
1800.	0.13	0.53	1.05	0.05	0.08	0.00	0.08	0.25	0.20	1.15	1.43	0.38	0.25	0.05	0.08	0.18	5.87
1850.	0.13	0.40	0.93	0.05	0.08	0.00	0.08	0.25	0.20	0.75	1.18	0.38	0.25	0.05	0.08	0.18	4.96
1900.	0.13	0.40	0.93	0.05	0.08	0.00	0.08	0.25	0.20	0.75	1.18	0.38	0.25	0.05	0.08	0.18	4.96
1950.	0.13	0.40	0.93	0.05	0.08	0.00	0.08	0.25	0.20	0.75	1.18	0.38	0.25	0.05	0.08	0.18	4.96
2000.	0.13	0.40	0.93	0.05	0.08	0.00	0.08	0.25	0.20	0.75	1.18	0.38	0.25	0.05	0.08	0.18	4.96
2050.	0.13	0.35	0.75	0.05	0.08	0.00	0.05	0.25	0.20	0.65	0.90	0.38	0.25	0.00	0.05	0.18	4.26
2100.	0.08	0.35	0.75	0.03	0.03	0.00	0.05	0.25	0.10	0.65	0.90	0.38	0.18	0.00	0.05	0.15	3.94
2150.	0.08	0.35	0.75	0.03	0.03	0.00	0.05	0.25	0.10	0.65	0.90	0.38	0.18	0.00	0.05	0.15	3.94
2200.	0.08	0.35	0.75	0.03	0.03	0.00	0.05	0.25	0.10	0.65	0.90	0.38	0.18	0.00	0.05	0.15	3.94
2250.	0.08	0.35	0.75	0.03	0.03	0.00	0.05	0.25	0.10	0.65	0.90	0.38	0.18	0.00	0.05	0.15	3.94
2300.	0.08	0.35	0.75	0.03	0.03	0.00	0.05	0.25	0.10	0.65	0.90	0.38	0.18	0.00	0.05	0.15	3.94
2350.	0.08	0.35	0.75	0.03	0.03	0.00	0.05	0.25	0.10	0.65	0.90	0.38	0.18	0.00	0.05	0.15	3.94
2400.	0.08	0.35	0.75	0.03	0.03	0.00	0.05	0.25	0.10	0.65	0.90	0.38	0.18	0.00	0.05	0.15	3.94
2450.	0.08	0.28	0.55	0.03	0.03	0.00	0.05	0.25	0.10	0.50	0.80	0.38	0.18	0.00	0.05	0.15	3.41
2500.	0.08	0.28	0.55	0.03	0.03	0.00	0.05	0.25	0.10	0.50	0.80	0.38	0.18	0.00	0.05	0.15	3.41

PLUME LENGTH FREQUENCY TABLE

CIRCULAR MECHANICAL DRAFT COOLING TOWERS - CATAWBA NUCLEAR STATION

SEASON=SUMMER

DISTANCE FROM TOWER (M)	WIND FROM PLUME HEADED																
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	SUM
	S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	SUM
2550.	0.08	0.28	0.55	0.03	0.03	0.00	0.05	0.25	0.10	0.50	0.80	0.38	0.18	0.00	0.05	0.15	3.41
2600.	0.08	0.28	0.55	0.03	0.03	0.00	0.05	0.25	0.10	0.50	0.80	0.38	0.18	0.00	0.05	0.15	3.41
2650.	0.08	0.28	0.55	0.03	0.03	0.00	0.05	0.25	0.10	0.50	0.80	0.38	0.18	0.00	0.05	0.15	3.41
2700.	0.08	0.28	0.55	0.03	0.03	0.00	0.05	0.25	0.10	0.50	0.80	0.38	0.18	0.00	0.05	0.15	3.41
2750.	0.08	0.28	0.55	0.03	0.03	0.00	0.05	0.25	0.10	0.50	0.80	0.38	0.18	0.00	0.05	0.15	3.41
2800.	0.08	0.28	0.55	0.03	0.03	0.00	0.05	0.25	0.10	0.50	0.80	0.38	0.18	0.00	0.05	0.15	3.41
2850.	0.08	0.28	0.55	0.03	0.03	0.00	0.05	0.25	0.10	0.50	0.80	0.38	0.18	0.00	0.05	0.15	3.41
2900.	0.05	0.28	0.55	0.03	0.00	0.00	0.05	0.20	0.10	0.50	0.80	0.33	0.15	0.00	0.05	0.08	3.16
2950.	0.05	0.28	0.55	0.03	0.00	0.00	0.05	0.20	0.10	0.50	0.80	0.33	0.15	0.00	0.05	0.08	3.16
3000.	0.05	0.28	0.55	0.03	0.00	0.00	0.05	0.20	0.10	0.50	0.80	0.33	0.15	0.00	0.05	0.08	3.16
3050.	0.05	0.28	0.55	0.03	0.00	0.00	0.05	0.20	0.10	0.50	0.80	0.33	0.15	0.00	0.05	0.08	3.16
3100.	0.05	0.28	0.55	0.03	0.00	0.00	0.05	0.20	0.10	0.50	0.80	0.33	0.15	0.00	0.05	0.08	3.16
3150.	0.05	0.28	0.30	0.03	0.00	0.00	0.05	0.20	0.10	0.45	0.65	0.33	0.15	0.00	0.05	0.08	2.71
3200.	0.05	0.28	0.30	0.03	0.00	0.00	0.05	0.20	0.10	0.45	0.65	0.33	0.15	0.00	0.05	0.08	2.71
3250.	0.05	0.28	0.30	0.03	0.00	0.00	0.05	0.20	0.10	0.45	0.65	0.33	0.15	0.00	0.05	0.08	2.71
3300.	0.05	0.28	0.30	0.03	0.00	0.00	0.05	0.20	0.10	0.45	0.65	0.33	0.15	0.00	0.05	0.08	2.71
3350.	0.05	0.28	0.30	0.03	0.00	0.00	0.05	0.20	0.10	0.45	0.65	0.33	0.15	0.00	0.05	0.08	2.71
3400.	0.05	0.28	0.30	0.03	0.00	0.00	0.05	0.20	0.10	0.45	0.65	0.33	0.15	0.00	0.05	0.08	2.71
3450.	0.05	0.28	0.30	0.03	0.00	0.00	0.05	0.20	0.10	0.45	0.65	0.33	0.15	0.00	0.05	0.08	2.71
3500.	0.05	0.28	0.30	0.03	0.00	0.00	0.05	0.20	0.10	0.45	0.65	0.33	0.15	0.00	0.05	0.08	2.71
3550.	0.05	0.28	0.30	0.03	0.00	0.00	0.05	0.20	0.10	0.45	0.65	0.33	0.15	0.00	0.05	0.08	2.71
3600.	0.05	0.28	0.30	0.03	0.00	0.00	0.05	0.20	0.10	0.45	0.65	0.33	0.15	0.00	0.05	0.08	2.71
3650.	0.05	0.28	0.30	0.03	0.00	0.00	0.05	0.20	0.10	0.45	0.65	0.33	0.15	0.00	0.05	0.08	2.71
3700.	0.05	0.28	0.30	0.00	0.00	0.00	0.05	0.13	0.03	0.45	0.65	0.25	0.08	0.00	0.05	0.08	2.38
3750.	0.05	0.28	0.30	0.00	0.00	0.00	0.05	0.13	0.03	0.45	0.65	0.25	0.08	0.00	0.05	0.08	2.38
3800.	0.05	0.28	0.30	0.00	0.00	0.00	0.05	0.13	0.03	0.45	0.65	0.25	0.08	0.00	0.05	0.08	2.38
3850.	0.05	0.28	0.30	0.00	0.00	0.00	0.05	0.13	0.03	0.45	0.65	0.25	0.08	0.00	0.05	0.08	2.38
3900.	0.05	0.25	0.03	0.00	0.00	0.00	0.05	0.13	0.03	0.25	0.55	0.25	0.08	0.00	0.05	0.08	1.78
3950.	0.05	0.25	0.03	0.00	0.00	0.00	0.05	0.13	0.03	0.25	0.55	0.25	0.08	0.00	0.05	0.08	1.78
4000.	0.05	0.25	0.03	0.00	0.00	0.00	0.05	0.13	0.03	0.25	0.55	0.25	0.08	0.00	0.05	0.08	1.78
4050.	0.05	0.25	0.03	0.00	0.00	0.00	0.05	0.13	0.03	0.25	0.55	0.25	0.08	0.00	0.05	0.08	1.78
4100.	0.05	0.25	0.03	0.00	0.00	0.00	0.05	0.13	0.03	0.25	0.55	0.25	0.08	0.00	0.05	0.08	1.78
4150.	0.05	0.25	0.03	0.00	0.00	0.00	0.05	0.13	0.03	0.25	0.55	0.25	0.08	0.00	0.05	0.08	1.78
4200.	0.05	0.25	0.03	0.00	0.00	0.00	0.05	0.13	0.03	0.25	0.55	0.25	0.08	0.00	0.05	0.08	1.78
4250.	0.05	0.25	0.03	0.00	0.00	0.00	0.05	0.13	0.03	0.25	0.55	0.25	0.08	0.00	0.05	0.08	1.78
4300.	0.05	0.25	0.03	0.00	0.00	0.00	0.05	0.13	0.03	0.25	0.55	0.25	0.08	0.00	0.05	0.08	1.78
4350.	0.05	0.25	0.03	0.00	0.00	0.00	0.05	0.13	0.03	0.25	0.55	0.25	0.08	0.00	0.05	0.08	1.78
4400.	0.05	0.25	0.03	0.00	0.00	0.00	0.05	0.13	0.03	0.25	0.55	0.25	0.08	0.00	0.05	0.08	1.78
4450.	0.05	0.25	0.03	0.00	0.00	0.00	0.05	0.13	0.03	0.25	0.55	0.25	0.08	0.00	0.05	0.08	1.78
4500.	0.05	0.25	0.03	0.00	0.00	0.00	0.05	0.13	0.03	0.25	0.55	0.25	0.08	0.00	0.05	0.08	1.78
4550.	0.05	0.25	0.03	0.00	0.00	0.00	0.05	0.13	0.03	0.25	0.55	0.25	0.08	0.00	0.05	0.08	1.78
4600.	0.03	0.25	0.03	0.00	0.00	0.00	0.05	0.03	0.00	0.25	0.55	0.18	0.03	0.00	0.05	0.05	1.48
4650.	0.03	0.25	0.03	0.00	0.00	0.00	0.05	0.03	0.00	0.25	0.55	0.18	0.03	0.00	0.05	0.05	1.48
4700.	0.03	0.25	0.03	0.00	0.00	0.00	0.05	0.03	0.00	0.25	0.55	0.18	0.03	0.00	0.05	0.05	1.48
4750.	0.03	0.25	0.03	0.00	0.00	0.00	0.05	0.03	0.00	0.25	0.55	0.18	0.03	0.00	0.05	0.05	1.48
4800.	0.03	0.25	0.03	0.00	0.00	0.00	0.05	0.03	0.00	0.25	0.55	0.18	0.03	0.00	0.05	0.05	1.48
4850.	0.03	0.25	0.03	0.00	0.00	0.00	0.05	0.03	0.00	0.25	0.55	0.18	0.03	0.00	0.05	0.05	1.48
4900.	0.03	0.25	0.03	0.00	0.00	0.00	0.05	0.03	0.00	0.25	0.55	0.18	0.03	0.00	0.05	0.05	1.48
4950.	0.03	0.25	0.03	0.00	0.00	0.00	0.05	0.03	0.00	0.25	0.55	0.18	0.03	0.00	0.05	0.05	1.48
5000.	0.03	0.25	0.03	0.00	0.00	0.00	0.05	0.03	0.00	0.25	0.55	0.18	0.03	0.00	0.05	0.05	1.48

PLUME HEIGHT FREQUENCY TABLE

CIRCULAR MECHANICAL DRAFT COOLING TOWERS - CATAWBA NUCLEAR STATION

SEASON=SUMMER

HEIGHT FROM TOWER (M)	WIND FROM: N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	SUM
	FLUME HEADED: S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	SUM
10.	5.02	6.92	10.26	4.09	4.39	3.04	4.09	7.02	6.25	16.48	14.10	6.04	4.92	2.48	2.26	2.66	100.00
20.	5.02	6.92	10.26	4.09	4.39	3.04	4.09	7.02	6.25	16.48	14.10	6.04	4.92	2.48	2.26	2.66	100.00
30.	5.02	6.92	10.26	4.09	4.39	3.04	4.09	7.02	6.25	16.48	14.10	6.04	4.92	2.48	2.26	2.66	100.00
40.	5.02	6.92	10.26	4.09	4.39	3.04	4.09	7.02	6.25	16.48	14.10	6.04	4.92	2.48	2.26	2.66	100.00
50.	5.02	6.92	10.26	4.09	4.36	3.04	4.09	7.02	6.25	16.48	14.10	5.99	4.89	2.46	2.26	2.66	99.87
60.	5.02	6.92	10.26	4.09	4.36	3.04	4.09	7.02	6.25	16.48	14.10	5.99	4.89	2.46	2.26	2.66	99.87
70.	5.02	6.92	10.26	4.09	4.36	3.04	4.09	7.02	6.25	16.48	14.10	5.99	4.89	2.46	2.26	2.66	99.87
80.	4.21	6.92	10.26	2.96	3.33	2.03	2.71	5.19	4.69	16.48	14.10	4.06	3.31	1.81	1.78	2.28	86.12
90.	4.21	3.66	5.72	2.96	3.33	2.03	2.71	5.19	4.69	10.21	6.75	4.06	3.31	1.81	1.78	2.28	64.69
100.	2.31	3.56	5.69	1.30	1.50	1.23	1.58	2.61	2.46	9.88	6.44	2.13	1.78	1.35	1.10	1.20	46.14
110.	0.78	3.56	5.69	0.50	0.45	0.95	1.25	1.15	0.98	9.88	6.44	1.08	0.75	0.95	0.68	0.40	35.50
120.	0.78	3.51	5.64	0.50	0.45	0.33	0.58	1.15	0.98	9.80	6.34	1.08	0.75	0.25	0.23	0.40	32.77
130.	0.78	3.51	5.64	0.50	0.45	0.30	0.53	1.15	0.98	9.80	6.34	1.08	0.75	0.20	0.18	0.40	32.60
140.	0.78	2.98	4.89	0.50	0.45	0.30	0.53	1.15	0.98	8.30	5.57	1.08	0.75	0.20	0.18	0.40	29.04
150.	0.63	1.76	2.61	0.35	0.38	0.25	0.38	1.10	0.90	4.81	3.59	0.93	0.63	0.20	0.15	0.38	19.03
160.	0.50	1.55	2.48	0.30	0.35	0.25	0.38	1.00	0.85	4.39	3.26	0.85	0.53	0.20	0.15	0.38	17.43
170.	0.40	1.55	2.48	0.23	0.28	0.25	0.38	0.78	0.63	4.39	3.26	0.80	0.48	0.20	0.15	0.35	16.60
180.	0.40	1.55	2.48	0.23	0.28	0.18	0.33	0.78	0.63	4.39	3.26	0.80	0.48	0.18	0.10	0.35	16.40
190.	0.40	1.55	2.48	0.23	0.28	0.18	0.33	0.78	0.63	4.39	3.26	0.80	0.48	0.18	0.10	0.35	16.40
200.	0.40	1.55	2.48	0.23	0.28	0.18	0.33	0.78	0.63	4.39	3.26	0.80	0.48	0.18	0.10	0.35	16.40
210.	0.40	1.38	2.26	0.23	0.28	0.18	0.33	0.78	0.63	3.76	2.96	0.80	0.48	0.18	0.10	0.35	15.07
220.	0.40	1.38	2.26	0.23	0.28	0.18	0.33	0.78	0.63	3.76	2.96	0.80	0.48	0.18	0.10	0.35	15.07
230.	0.40	1.38	2.26	0.23	0.28	0.18	0.33	0.78	0.63	3.76	2.96	0.80	0.48	0.18	0.10	0.35	15.07
240.	0.40	1.38	2.26	0.23	0.28	0.18	0.33	0.78	0.63	3.76	2.96	0.80	0.48	0.18	0.10	0.35	15.07
250.	0.40	1.38	2.26	0.23	0.28	0.08	0.30	0.78	0.63	3.76	2.96	0.80	0.48	0.18	0.10	0.35	14.94
260.	0.40	1.38	2.26	0.23	0.28	0.08	0.30	0.78	0.63	3.76	2.91	0.80	0.48	0.18	0.10	0.35	14.89
270.	0.40	1.25	2.06	0.23	0.28	0.08	0.30	0.78	0.63	3.51	2.81	0.80	0.48	0.18	0.10	0.35	14.22
280.	0.40	1.25	2.06	0.23	0.28	0.08	0.30	0.78	0.63	3.51	2.81	0.80	0.48	0.18	0.10	0.35	14.22
290.	0.40	1.25	2.06	0.23	0.28	0.08	0.30	0.78	0.63	3.51	2.81	0.80	0.48	0.18	0.10	0.35	14.22
300.	0.40	1.10	1.73	0.23	0.28	0.08	0.30	0.78	0.63	2.66	2.23	0.80	0.48	0.18	0.10	0.35	12.31
310.	0.40	1.10	1.73	0.23	0.28	0.08	0.30	0.78	0.63	2.66	2.23	0.80	0.48	0.18	0.10	0.35	12.31
320.	0.40	1.10	1.73	0.23	0.28	0.08	0.30	0.78	0.63	2.66	2.23	0.80	0.48	0.18	0.10	0.35	12.31
330.	0.40	1.10	1.73	0.23	0.28	0.08	0.30	0.78	0.63	2.66	2.23	0.80	0.48	0.18	0.10	0.35	12.31
340.	0.40	1.10	1.73	0.23	0.28	0.08	0.30	0.78	0.63	2.66	2.23	0.80	0.48	0.18	0.10	0.35	12.31
350.	0.40	1.10	1.73	0.23	0.28	0.08	0.30	0.78	0.63	2.66	2.23	0.80	0.48	0.18	0.10	0.35	12.31
360.	0.40	1.10	1.73	0.23	0.28	0.08	0.30	0.78	0.63	2.66	2.23	0.80	0.48	0.18	0.10	0.35	12.31
370.	0.40	1.10	1.73	0.23	0.28	0.08	0.30	0.78	0.63	2.66	2.23	0.80	0.48	0.18	0.10	0.35	12.31
380.	0.40	1.10	1.73	0.23	0.28	0.08	0.30	0.78	0.63	2.66	2.23	0.80	0.48	0.18	0.10	0.35	12.31
390.	0.40	1.10	1.73	0.23	0.28	0.08	0.30	0.78	0.63	2.66	2.23	0.80	0.48	0.18	0.10	0.35	12.31
400.	0.40	1.10	1.73	0.23	0.28	0.08	0.30	0.78	0.63	2.66	2.23	0.80	0.48	0.18	0.10	0.35	12.31
410.	0.40	1.10	1.73	0.23	0.28	0.08	0.30	0.78	0.63	2.66	2.23	0.80	0.48	0.18	0.10	0.35	12.31
420.	0.40	1.10	1.73	0.23	0.28	0.08	0.30	0.78	0.63	2.66	2.23	0.80	0.48	0.18	0.10	0.35	12.31
430.	0.40	1.10	1.73	0.23	0.28	0.08	0.30	0.78	0.63	2.66	2.23	0.80	0.48	0.18	0.10	0.35	12.31
440.	0.40	1.10	1.73	0.23	0.28	0.08	0.30	0.78	0.63	2.66	2.23	0.80	0.48	0.18	0.10	0.35	12.31
450.	0.40	1.10	1.73	0.23	0.28	0.08	0.30	0.78	0.63	2.66	2.23	0.80	0.48	0.18	0.10	0.35	12.31
460.	0.40	1.10	1.73	0.23	0.28	0.08	0.30	0.78	0.63	2.66	2.23	0.80	0.48	0.18	0.10	0.35	12.31
470.	0.40	0.80	1.33	0.23	0.28	0.08	0.30	0.78	0.63	2.03	1.86	0.80	0.48	0.18	0.10	0.35	10.61
480.	0.40	0.40	0.68	0.23	0.28	0.08	0.30	0.78	0.63	0.90	1.00	0.80	0.48	0.18	0.10	0.35	7.57
490.	0.40	0.40	0.68	0.23	0.28	0.00	0.05	0.78	0.63	0.90	1.00	0.80	0.48	0.00	0.05	0.35	7.02
500.	0.35	0.40	0.43	0.15	0.23	0.00	0.05	0.70	0.55	0.85	0.85	0.60	0.48	0.00	0.05	0.30	5.99

PLUME HEIGHT FREQUENCY TABLE

CIRCULAR MECHANICAL DRAFT COOLING TOWERS - CATAWBA NUCLEAR STATION

SEASON=SUMMER

HEIGHT FROM TOWER (M)	WIND FROM PLUME HEADED																
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	SUM
	S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	SUM
510.	0.08	0.38	0.15	0.03	0.03	0.00	0.05	0.25	0.10	0.65	0.75	0.38	0.18	0.00	0.05	0.15	3.21
520.	0.05	0.38	0.15	0.03	0.00	0.00	0.05	0.20	0.10	0.65	0.75	0.33	0.15	0.00	0.05	0.08	2.96
530.	0.05	0.38	0.15	0.03	0.00	0.00	0.05	0.20	0.10	0.65	0.75	0.33	0.15	0.00	0.05	0.08	2.96
540.	0.05	0.18	0.13	0.00	0.00	0.00	0.05	0.13	0.03	0.60	0.58	0.25	0.08	0.00	0.05	0.08	2.18
550.	0.05	0.05	0.00	0.00	0.00	0.00	0.05	0.13	0.03	0.20	0.33	0.25	0.08	0.00	0.05	0.08	1.28
560.	0.05	0.05	0.00	0.00	0.00	0.00	0.05	0.13	0.03	0.20	0.33	0.25	0.08	0.00	0.05	0.08	1.28
570.	0.05	0.05	0.00	0.00	0.00	0.00	0.05	0.13	0.03	0.20	0.33	0.25	0.08	0.00	0.05	0.08	1.28
580.	0.03	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.00	0.00	0.00	0.18	0.03	0.00	0.00	0.05	0.33
590.	0.03	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.00	0.00	0.00	0.18	0.03	0.00	0.00	0.05	0.33
600.	0.03	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.00	0.00	0.00	0.18	0.03	0.00	0.00	0.05	0.33
610.	0.03	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.00	0.00	0.00	0.18	0.03	0.00	0.00	0.05	0.33
620.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
630.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
640.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
650.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
660.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
670.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
680.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
690.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
700.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
710.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
720.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
730.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
740.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
750.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
760.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
770.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
780.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
790.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
800.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
810.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
820.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
830.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
840.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
850.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
860.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
870.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
880.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
890.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
900.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
910.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
920.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
930.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
940.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
950.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
960.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
970.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
980.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
990.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1000.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

PLUME RADIUS FREQUENCY TABLE

CIRCULAR MECHANICAL DRAFT COOLING TOWERS - CATAWBA NUCLEAR STATION

SEASON=SUMMER

MAXIMUM FROM TOWER (M)	WIND FROM N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	SUM
	PLUME HEADED S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	SUM
5.	5.02	6.92	10.26	4.09	4.39	3.04	4.09	7.02	6.25	16.48	14.10	6.04	4.92	2.48	2.26	2.66	100.00
10.	5.02	6.92	10.26	4.09	4.39	3.04	4.09	7.02	6.25	16.48	14.10	6.04	4.92	2.48	2.26	2.66	100.00
15.	5.02	6.92	10.26	4.09	4.39	3.04	4.09	7.02	6.25	16.48	14.10	6.04	4.92	2.48	2.26	2.66	100.00
20.	5.02	6.92	10.26	4.09	4.39	3.04	4.09	7.02	6.25	16.48	14.10	6.04	4.92	2.48	2.26	2.66	100.00
25.	4.21	6.92	10.26	2.96	3.33	2.03	2.71	5.19	4.69	16.48	14.10	4.06	3.31	1.83	1.78	2.28	86.14
30.	3.03	5.19	7.65	1.91	2.11	1.23	1.58	3.56	3.39	12.99	8.60	2.68	2.21	1.35	1.10	1.60	60.18
35.	3.03	3.56	5.69	1.91	2.11	1.23	1.58	3.56	3.39	9.88	6.44	2.68	2.21	1.35	1.10	1.60	51.33
40.	2.73	3.56	5.69	1.40	1.71	0.83	1.38	2.98	3.01	9.88	6.44	2.33	1.88	1.15	0.95	1.33	47.26
45.	2.13	3.56	5.69	1.18	1.23	0.58	1.03	2.28	2.16	9.88	6.44	1.93	1.45	0.70	0.60	0.98	41.82
50.	1.15	3.56	5.69	0.70	0.70	0.43	0.60	1.38	1.28	9.88	6.44	1.25	0.93	0.50	0.35	0.53	35.38
55.	0.95	3.56	5.69	0.58	0.48	0.35	0.58	1.28	1.05	9.88	6.44	1.15	0.83	0.43	0.28	0.45	33.98
60.	0.63	3.23	5.22	0.35	0.38	0.35	0.58	1.10	0.90	8.98	5.82	0.93	0.63	0.43	0.28	0.38	30.16
65.	0.63	2.73	4.31	0.35	0.38	0.35	0.58	1.10	0.90	7.70	5.24	0.93	0.63	0.43	0.28	0.38	26.90
70.	0.40	2.58	4.16	0.23	0.28	0.35	0.58	0.78	0.63	7.25	4.81	0.80	0.48	0.43	0.28	0.35	24.37
75.	0.40	2.23	3.46	0.23	0.28	0.18	0.50	0.78	0.63	6.29	4.29	0.80	0.48	0.40	0.23	0.35	21.51
80.	0.40	1.55	2.48	0.23	0.28	0.18	0.50	0.78	0.63	4.39	3.26	0.80	0.48	0.40	0.23	0.35	16.93
85.	0.40	1.38	2.26	0.23	0.28	0.13	0.45	0.78	0.63	3.76	2.96	0.80	0.48	0.28	0.15	0.35	15.20
90.	0.40	1.10	1.73	0.23	0.28	0.13	0.45	0.78	0.63	2.66	2.28	0.80	0.48	0.28	0.15	0.35	12.61
95.	0.40	1.00	1.60	0.23	0.28	0.13	0.35	0.78	0.63	2.33	2.16	0.80	0.48	0.28	0.15	0.35	11.94
100.	0.40	1.00	1.60	0.23	0.28	0.10	0.18	0.78	0.63	2.33	2.16	0.80	0.48	0.25	0.13	0.35	11.69
105.	0.40	0.90	1.50	0.23	0.28	0.10	0.18	0.78	0.63	2.06	1.88	0.80	0.48	0.25	0.13	0.35	10.93
110.	0.40	0.65	1.33	0.23	0.28	0.10	0.18	0.78	0.63	1.73	1.63	0.80	0.48	0.25	0.13	0.35	9.93
115.	0.40	0.65	1.33	0.23	0.28	0.08	0.18	0.78	0.63	1.73	1.63	0.80	0.48	0.20	0.13	0.35	9.85
120.	0.40	0.65	1.33	0.23	0.28	0.08	0.18	0.78	0.63	1.73	1.63	0.80	0.48	0.20	0.13	0.35	9.85
125.	0.40	0.65	1.33	0.23	0.28	0.08	0.18	0.78	0.63	1.73	1.63	0.80	0.48	0.20	0.13	0.35	9.85
130.	0.40	0.65	1.33	0.23	0.28	0.08	0.18	0.78	0.63	1.73	1.63	0.80	0.48	0.20	0.13	0.35	9.85
135.	0.28	0.65	1.33	0.15	0.23	0.08	0.18	0.58	0.58	1.73	1.58	0.75	0.35	0.20	0.13	0.28	9.05
140.	0.28	0.65	1.33	0.15	0.23	0.08	0.18	0.58	0.58	1.73	1.58	0.75	0.35	0.20	0.13	0.28	9.05
145.	0.28	0.65	1.33	0.15	0.23	0.08	0.18	0.58	0.58	1.73	1.58	0.75	0.35	0.20	0.13	0.28	9.05
150.	0.28	0.65	1.33	0.15	0.23	0.08	0.18	0.58	0.58	1.73	1.58	0.75	0.35	0.20	0.13	0.28	9.05
155.	0.20	0.65	1.33	0.13	0.20	0.05	0.18	0.43	0.45	1.73	1.58	0.63	0.28	0.20	0.08	0.23	8.32
160.	0.20	0.65	1.33	0.13	0.20	0.05	0.18	0.43	0.45	1.73	1.58	0.63	0.28	0.20	0.08	0.23	8.32
165.	0.15	0.65	1.33	0.05	0.15	0.05	0.18	0.35	0.38	1.73	1.58	0.43	0.28	0.20	0.08	0.18	7.75
170.	0.15	0.58	1.28	0.05	0.15	0.05	0.18	0.35	0.38	1.45	1.50	0.43	0.28	0.20	0.08	0.18	7.27
175.	0.15	0.58	1.28	0.05	0.15	0.05	0.13	0.35	0.38	1.45	1.50	0.43	0.28	0.15	0.08	0.18	7.17
180.	0.15	0.40	0.93	0.05	0.15	0.00	0.08	0.35	0.38	0.75	1.13	0.43	0.28	0.05	0.08	0.18	5.37
185.	0.15	0.40	0.93	0.05	0.15	0.00	0.08	0.35	0.38	0.75	1.13	0.43	0.28	0.05	0.08	0.18	5.37
190.	0.15	0.40	0.93	0.05	0.15	0.00	0.08	0.35	0.38	0.75	1.13	0.43	0.28	0.05	0.08	0.18	5.37
195.	0.15	0.40	0.93	0.05	0.15	0.00	0.08	0.35	0.38	0.75	1.13	0.43	0.28	0.05	0.08	0.18	5.37
200.	0.13	0.40	0.93	0.05	0.08	0.00	0.08	0.25	0.20	0.75	1.13	0.38	0.25	0.05	0.08	0.18	4.91
205.	0.13	0.40	0.93	0.05	0.08	0.00	0.08	0.25	0.20	0.75	1.13	0.38	0.25	0.05	0.08	0.18	4.91
210.	0.13	0.35	0.75	0.05	0.08	0.00	0.05	0.25	0.20	0.65	0.85	0.38	0.25	0.00	0.05	0.18	4.21
215.	0.13	0.35	0.75	0.05	0.08	0.00	0.05	0.25	0.20	0.65	0.85	0.38	0.25	0.00	0.05	0.18	4.21
220.	0.13	0.35	0.75	0.05	0.08	0.00	0.05	0.25	0.20	0.65	0.85	0.38	0.25	0.00	0.05	0.18	4.21
225.	0.13	0.35	0.75	0.05	0.08	0.00	0.05	0.25	0.20	0.65	0.85	0.38	0.25	0.00	0.05	0.18	4.21
230.	0.08	0.35	0.75	0.03	0.03	0.00	0.05	0.25	0.10	0.65	0.85	0.38	0.18	0.00	0.05	0.15	3.89
235.	0.08	0.35	0.75	0.03	0.03	0.00	0.05	0.25	0.10	0.65	0.85	0.38	0.18	0.00	0.05	0.15	3.89
240.	0.08	0.28	0.55	0.03	0.03	0.00	0.05	0.25	0.10	0.50	0.75	0.38	0.18	0.00	0.05	0.15	3.36
245.	0.08	0.28	0.55	0.03	0.03	0.00	0.05	0.25	0.10	0.50	0.75	0.38	0.18	0.00	0.05	0.15	3.36
250.	0.08	0.28	0.55	0.03	0.03	0.00	0.05	0.25	0.10	0.50	0.75	0.38	0.18	0.00	0.05	0.15	3.36

PLUME RADIUS FREQUENCY TABLE

CIRCULAR MECHANICAL DRAFT COOLING TOWERS - CATAWBA NUCLEAR STATION

SEASON=SUMMER

MAXIMUM FROM TOWER (M)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	SUM
	S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	SUM
	WIND FROM							PLUME HEADED									
255.	0.08	0.28	0.55	0.03	0.03	0.00	0.05	0.25	0.10	0.50	0.75	0.38	0.18	0.00	0.05	0.15	3.36
260.	0.08	0.28	0.55	0.03	0.03	0.00	0.05	0.25	0.10	0.50	0.75	0.38	0.18	0.00	0.05	0.15	3.36
265.	0.08	0.28	0.55	0.03	0.03	0.00	0.05	0.25	0.10	0.50	0.75	0.38	0.18	0.00	0.05	0.15	3.36
270.	0.08	0.28	0.55	0.03	0.03	0.00	0.05	0.25	0.10	0.50	0.75	0.38	0.18	0.00	0.05	0.15	3.36
275.	0.05	0.28	0.55	0.03	0.00	0.00	0.05	0.20	0.10	0.50	0.75	0.33	0.15	0.00	0.05	0.08	3.11
280.	0.05	0.28	0.30	0.03	0.00	0.00	0.05	0.20	0.10	0.45	0.60	0.33	0.15	0.00	0.05	0.08	2.66
285.	0.05	0.28	0.30	0.03	0.00	0.00	0.05	0.20	0.10	0.45	0.60	0.33	0.15	0.00	0.05	0.08	2.66
290.	0.05	0.28	0.30	0.03	0.00	0.00	0.05	0.20	0.10	0.45	0.60	0.33	0.15	0.00	0.05	0.08	2.66
295.	0.05	0.28	0.30	0.03	0.00	0.00	0.05	0.20	0.10	0.45	0.60	0.33	0.15	0.00	0.05	0.08	2.66
300.	0.05	0.28	0.30	0.03	0.00	0.00	0.05	0.20	0.10	0.45	0.60	0.33	0.15	0.00	0.05	0.08	2.66
305.	0.05	0.28	0.30	0.03	0.00	0.00	0.05	0.20	0.10	0.45	0.60	0.33	0.15	0.00	0.05	0.08	2.66
310.	0.05	0.28	0.30	0.03	0.00	0.00	0.05	0.20	0.10	0.45	0.60	0.33	0.15	0.00	0.05	0.08	2.66
315.	0.05	0.28	0.30	0.00	0.00	0.00	0.05	0.13	0.03	0.45	0.60	0.25	0.08	0.00	0.05	0.08	2.33
320.	0.05	0.28	0.30	0.00	0.00	0.00	0.05	0.13	0.03	0.45	0.60	0.25	0.08	0.00	0.05	0.08	2.33
325.	0.05	0.25	0.03	0.00	0.00	0.00	0.05	0.13	0.03	0.25	0.50	0.25	0.08	0.00	0.05	0.08	1.73
330.	0.05	0.25	0.03	0.00	0.00	0.00	0.05	0.13	0.03	0.25	0.50	0.25	0.08	0.00	0.05	0.08	1.73
335.	0.05	0.25	0.03	0.00	0.00	0.00	0.05	0.13	0.03	0.25	0.50	0.25	0.08	0.00	0.05	0.08	1.73
340.	0.05	0.25	0.03	0.00	0.00	0.00	0.05	0.13	0.03	0.25	0.50	0.25	0.08	0.00	0.05	0.08	1.73
345.	0.05	0.25	0.03	0.00	0.00	0.00	0.05	0.13	0.03	0.25	0.50	0.25	0.08	0.00	0.05	0.08	1.73
350.	0.05	0.25	0.03	0.00	0.00	0.00	0.05	0.13	0.03	0.25	0.50	0.25	0.08	0.00	0.05	0.08	1.73
355.	0.05	0.25	0.03	0.00	0.00	0.00	0.05	0.13	0.03	0.25	0.50	0.25	0.08	0.00	0.05	0.08	1.73
360.	0.05	0.25	0.03	0.00	0.00	0.00	0.05	0.13	0.03	0.25	0.50	0.25	0.08	0.00	0.05	0.08	1.73
365.	0.05	0.25	0.03	0.00	0.00	0.00	0.05	0.13	0.03	0.25	0.50	0.25	0.08	0.00	0.05	0.08	1.73
370.	0.05	0.25	0.03	0.00	0.00	0.00	0.05	0.13	0.03	0.25	0.50	0.25	0.08	0.00	0.05	0.08	1.73
375.	0.05	0.25	0.03	0.00	0.00	0.00	0.05	0.13	0.03	0.25	0.50	0.25	0.08	0.00	0.05	0.08	1.73
380.	0.05	0.25	0.03	0.00	0.00	0.00	0.05	0.13	0.03	0.25	0.50	0.25	0.08	0.00	0.05	0.08	1.73
385.	0.05	0.25	0.03	0.00	0.00	0.00	0.05	0.13	0.03	0.25	0.50	0.25	0.08	0.00	0.05	0.08	1.73
390.	0.05	0.25	0.03	0.00	0.00	0.00	0.05	0.13	0.03	0.25	0.50	0.25	0.08	0.00	0.05	0.08	1.73
395.	0.05	0.25	0.03	0.00	0.00	0.00	0.05	0.13	0.03	0.25	0.50	0.25	0.08	0.00	0.05	0.08	1.73
400.	0.05	0.25	0.03	0.00	0.00	0.00	0.05	0.13	0.03	0.25	0.50	0.25	0.08	0.00	0.05	0.08	1.73
405.	0.05	0.25	0.03	0.00	0.00	0.00	0.05	0.13	0.03	0.25	0.50	0.25	0.08	0.00	0.05	0.08	1.73
410.	0.03	0.25	0.03	0.00	0.00	0.00	0.05	0.03	0.00	0.25	0.50	0.18	0.03	0.00	0.05	0.05	1.43
415.	0.03	0.25	0.03	0.00	0.00	0.00	0.03	0.03	0.00	0.25	0.50	0.18	0.03	0.00	0.00	0.05	1.35
420.	0.03	0.25	0.03	0.00	0.00	0.00	0.03	0.03	0.00	0.25	0.50	0.18	0.03	0.00	0.00	0.05	1.35
425.	0.03	0.25	0.03	0.00	0.00	0.00	0.03	0.03	0.00	0.25	0.50	0.18	0.03	0.00	0.00	0.05	1.35
430.	0.03	0.05	0.00	0.00	0.00	0.00	0.03	0.03	0.00	0.20	0.33	0.18	0.03	0.00	0.00	0.05	0.90
435.	0.03	0.05	0.00	0.00	0.00	0.00	0.03	0.03	0.00	0.20	0.33	0.18	0.03	0.00	0.00	0.05	0.90
440.	0.03	0.05	0.00	0.00	0.00	0.00	0.03	0.03	0.00	0.20	0.33	0.18	0.03	0.00	0.00	0.05	0.90
445.	0.03	0.05	0.00	0.00	0.00	0.00	0.03	0.03	0.00	0.20	0.33	0.18	0.03	0.00	0.00	0.05	0.90
450.	0.03	0.05	0.00	0.00	0.00	0.00	0.03	0.03	0.00	0.20	0.33	0.18	0.03	0.00	0.00	0.05	0.90
455.	0.03	0.05	0.00	0.00	0.00	0.00	0.03	0.03	0.00	0.20	0.33	0.18	0.03	0.00	0.00	0.05	0.90
460.	0.03	0.05	0.00	0.00	0.00	0.00	0.03	0.03	0.00	0.20	0.33	0.18	0.03	0.00	0.00	0.05	0.90
465.	0.03	0.05	0.00	0.00	0.00	0.00	0.03	0.03	0.00	0.20	0.33	0.18	0.03	0.00	0.00	0.05	0.90
470.	0.03	0.05	0.00	0.00	0.00	0.00	0.03	0.03	0.00	0.20	0.33	0.18	0.03	0.00	0.00	0.05	0.90
475.	0.03	0.05	0.00	0.00	0.00	0.00	0.03	0.03	0.00	0.20	0.33	0.18	0.03	0.00	0.00	0.05	0.90
480.	0.03	0.05	0.00	0.00	0.00	0.00	0.03	0.03	0.00	0.20	0.33	0.18	0.03	0.00	0.00	0.05	0.90
485.	0.03	0.05	0.00	0.00	0.00	0.00	0.03	0.03	0.00	0.20	0.33	0.18	0.03	0.00	0.00	0.05	0.90
490.	0.03	0.05	0.00	0.00	0.00	0.00	0.03	0.03	0.00	0.20	0.33	0.18	0.03	0.00	0.00	0.05	0.90
495.	0.03	0.05	0.00	0.00	0.00	0.00	0.03	0.03	0.00	0.20	0.33	0.18	0.03	0.00	0.00	0.05	0.90
500.	0.03	0.05	0.00	0.00	0.00	0.00	0.03	0.03	0.00	0.20	0.33	0.18	0.03	0.00	0.00	0.05	0.90

********** HOURS OF PLUME FOGGING TABLE **********

CIRCULAR MECHANICAL DRAFT COOLING TOWERS - CATAWBA NUCLEAR STATION

SEASON=SUMMER

DISTANCE FROM TOWER (M)	WIND FROM ********** PLUME HEADED **********																
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	AVG
	S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	AVG
100.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
300.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
400.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
500.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
600.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
700.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
800.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
900.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1000.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1100.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1200.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1300.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1400.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1500.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1600.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

********** HOURS OF RIME ICING TABLE **********

CIRCULAR MECHANICAL DRAFT COOLING TOWERS - CATAWBA NUCLEAR STATION

SEASON=SUMMER

DISTANCE FROM TOWER (M)	WIND FROM ********** PLUME HEADED **********																
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	AVG
	S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	AVG
100.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
300.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
400.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
500.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
600.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
700.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
800.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
900.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1000.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1100.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1200.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1300.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1400.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1500.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1600.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

********** FREQUENCY PERCENTAGE BY CATEGORY AND WIND DIRECTION **********

CIRCULAR MECHANICAL DRAFT COOLING TOWERS - CATAWBA NUCLEAR STATION

SEASON=FALL

********** WIND FROM **********

CATEGORY NUMBER	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
********** PLUME HEADED **********																	
	S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	SUM
11	0.21	0.32	0.38	0.38	0.36	0.59	0.79	0.62	0.32	0.53	0.76	0.50	0.26	0.35	0.21	0.29	6.90
12	0.71	0.82	1.23	0.41	0.59	0.35	0.68	0.50	0.50	1.59	1.15	0.62	0.59	0.47	0.47	0.21	10.87
13	0.00	0.15	0.06	0.12	0.09	0.09	0.15	0.12	0.09	0.35	0.24	0.00	0.21	0.03	0.06	0.00	1.73
14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.03
15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.06	0.12	0.00	0.00	0.00	0.03	0.26
16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17	0.06	0.15	0.12	0.03	0.06	0.00	0.06	0.00	0.03	0.12	0.15	0.03	0.06	0.00	0.06	0.00	0.91
18	0.18	0.12	0.35	0.24	0.21	0.12	0.12	0.03	0.12	0.62	0.18	0.00	0.00	0.03	0.06	0.06	2.41
19	0.03	0.06	0.06	0.03	0.00	0.06	0.03	0.03	0.03	0.00	0.06	0.03	0.06	0.06	0.00	0.03	0.56
20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
21	0.32	0.32	0.44	0.18	0.29	0.09	0.21	0.00	0.12	0.38	0.56	0.09	0.06	0.03	0.15	0.12	3.35
22	0.29	0.26	0.38	0.18	0.09	0.06	0.15	0.12	0.15	0.35	0.32	0.12	0.06	0.18	0.21	0.21	3.11
23	0.09	0.35	0.26	0.18	0.15	0.12	0.12	0.06	0.15	0.50	0.29	0.06	0.09	0.12	0.15	0.26	2.94
24	0.21	0.18	0.35	0.24	0.06	0.00	0.09	0.06	0.06	0.53	0.32	0.15	0.09	0.03	0.12	0.03	2.50
25	0.21	0.32	0.29	0.12	0.18	0.09	0.12	0.12	0.35	0.29	0.29	0.18	0.12	0.12	0.09	0.21	3.08
26	0.29	0.29	0.56	0.29	0.24	0.18	0.09	0.15	0.15	0.59	0.38	0.06	0.26	0.03	0.09	0.12	3.76
27	0.21	0.24	0.32	0.24	0.12	0.03	0.06	0.12	0.18	0.32	0.18	0.15	0.12	0.03	0.18	0.06	2.53
28	0.38	0.32	0.62	0.09	0.12	0.09	0.09	0.15	0.15	0.29	0.21	0.03	0.00	0.18	0.12	0.21	3.03
29	0.44	0.26	0.59	0.12	0.26	0.09	0.03	0.03	0.21	0.18	0.38	0.06	0.24	0.15	0.21	0.06	3.29
30	0.24	0.21	0.24	0.09	0.06	0.00	0.06	0.06	0.03	0.21	0.24	0.15	0.06	0.06	0.26	0.09	2.03
31	0.56	0.24	0.71	0.32	0.21	0.06	0.09	0.09	0.15	0.35	0.26	0.12	0.12	0.06	0.24	0.26	3.82
32	0.35	0.26	0.38	0.00	0.09	0.09	0.09	0.09	0.09	0.18	0.21	0.12	0.09	0.06	0.12	0.09	2.29
33	0.35	0.12	0.38	0.18	0.12	0.06	0.06	0.00	0.21	0.29	0.26	0.03	0.12	0.06	0.12	0.18	2.53
34	0.21	0.26	0.62	0.12	0.12	0.03	0.03	0.12	0.15	0.32	0.29	0.12	0.06	0.15	0.18	0.24	3.00
35	0.15	0.32	0.53	0.24	0.06	0.12	0.09	0.09	0.26	0.53	0.26	0.18	0.15	0.00	0.21	0.03	3.20
36	0.35	0.29	0.44	0.21	0.15	0.12	0.09	0.03	0.09	0.18	0.24	0.12	0.09	0.18	0.09	0.12	2.76
37	0.44	0.26	0.41	0.03	0.03	0.09	0.09	0.18	0.15	0.18	0.29	0.18	0.21	0.15	0.06	0.18	2.91
38	0.24	0.35	0.47	0.06	0.12	0.06	0.03	0.06	0.21	0.21	0.29	0.18	0.09	0.12	0.12	0.06	2.64
39	0.21	0.26	0.50	0.12	0.06	0.03	0.03	0.03	0.15	0.32	0.24	0.21	0.15	0.18	0.03	0.21	2.70
40	0.24	0.38	0.47	0.09	0.18	0.12	0.15	0.12	0.06	0.50	0.62	0.18	0.18	0.09	0.03	0.09	3.47
41	0.35	0.44	0.47	0.06	0.24	0.18	0.12	0.09	0.09	0.35	0.47	0.18	0.21	0.06	0.12	0.09	3.47
42	0.50	0.50	0.76	0.12	0.26	0.18	0.12	0.15	0.24	0.47	0.47	0.12	0.09	0.06	0.15	0.09	4.26
43	0.32	0.59	1.91	0.26	0.62	0.35	0.18	0.12	0.47	1.12	0.76	0.35	0.26	0.09	0.09	0.24	7.73
44	0.15	0.18	0.21	0.12	0.06	0.00	0.06	0.12	0.18	0.21	0.35	0.03	0.03	0.12	0.06	0.00	1.85
45	0.00	0.03	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.09
TOTALS	8.23	8.87	14.51	4.82	5.20	3.41	4.02	3.41	5.08	12.10	11.78	4.41	4.11	3.20	4.02	3.82	100.00

********** STABILITY CLASS BY WIND DIRECTION **********
CIRCULAR MECHANICAL DRAFT COOLING TOWERS - CATAWBA NUCLEAR STATION
SEASON=FALL

STABILITY CLASS	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
	********** WIND FROM **********																
	********** PLUME HEADED **********																
	S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	STAG.
1	0.03	0.11	0.04	0.08	0.07	0.16	0.21	0.20	0.06	0.05	0.11	0.07	0.11	0.14	0.11	0.10	0.00
2	0.02	0.02	0.01	0.04	0.02	0.01	0.01	0.04	0.02	0.04	0.04	0.06	0.04	0.05	0.01	0.05	0.00
3	0.01	0.03	0.02	0.01	0.03	0.01	0.03	0.03	0.02	0.02	0.02	0.01	0.01	0.00	0.02	0.02	0.00
4	0.32	0.38	0.49	0.35	0.35	0.33	0.23	0.22	0.23	0.33	0.27	0.23	0.19	0.26	0.39	0.23	0.00
5	0.37	0.25	0.31	0.34	0.37	0.30	0.23	0.20	0.36	0.34	0.31	0.28	0.34	0.22	0.21	0.30	0.00
6	0.13	0.14	0.06	0.10	0.10	0.09	0.11	0.14	0.12	0.09	0.11	0.11	0.09	0.09	0.11	0.13	0.00
7	0.11	0.08	0.07	0.09	0.06	0.10	0.19	0.16	0.20	0.14	0.15	0.24	0.22	0.25	0.15	0.16	0.00

********** WIND SPEED DISTRIBUTION BY DIRECTION AT REFERENCE HEIGHT OF 200. METERS **********
CIRCULAR MECHANICAL DRAFT COOLING TOWERS - CATAWBA NUCLEAR STATION
SEASON=FALL

WIND RANGE	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
	********** WIND FROM **********																
	********** PLUME HEADED **********																
	S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	STAG.
1	0.24	0.23	0.18	0.32	0.26	0.26	0.50	0.43	0.48	0.31	0.23	0.29	0.24	0.18	0.26	0.25	0.00
2	0.58	0.62	0.62	0.54	0.58	0.61	0.48	0.52	0.48	0.59	0.54	0.41	0.46	0.43	0.32	0.52	0.00
3	0.19	0.15	0.20	0.14	0.16	0.13	0.02	0.05	0.04	0.10	0.23	0.29	0.30	0.39	0.42	0.22	0.00

********** COMBINED FACTORS BY WIND DIRECTION **********
CIRCULAR MECHANICAL DRAFT COOLING TOWERS - CATAWBA NUCLEAR STATION
SEASON=FALL

COMBINED CLASS*	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
	********** WIND FROM **********																
	********** PLUME HEADED **********																
	S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	STAG.
1	0.02	0.04	0.01	0.04	0.03	0.05	0.12	0.12	0.04	0.03	0.04	0.04	0.04	0.03	0.04	0.04	0.00
2	0.04	0.09	0.05	0.07	0.07	0.11	0.12	0.14	0.06	0.06	0.09	0.06	0.07	0.08	0.05	0.09	0.00
3	0.01	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.00	0.01	0.04	0.04	0.05	0.07	0.06	0.04	0.00
4	0.16	0.15	0.14	0.22	0.19	0.16	0.22	0.18	0.28	0.21	0.13	0.15	0.12	0.09	0.16	0.13	0.00
5	0.40	0.39	0.49	0.37	0.41	0.39	0.22	0.22	0.28	0.40	0.31	0.21	0.25	0.21	0.19	0.28	0.00
6	0.13	0.09	0.16	0.10	0.12	0.08	0.01	0.02	0.02	0.07	0.13	0.15	0.16	0.18	0.25	0.12	0.00
7	0.06	0.05	0.02	0.06	0.04	0.05	0.15	0.13	0.15	0.07	0.06	0.10	0.07	0.06	0.07	0.07	0.00
8	0.14	0.14	0.08	0.10	0.09	0.12	0.14	0.16	0.15	0.13	0.14	0.14	0.15	0.15	0.08	0.15	0.00
9	0.04	0.03	0.03	0.03	0.03	0.02	0.01	0.02	0.01	0.02	0.06	0.10	0.09	0.13	0.11	0.07	0.00

* COMBINED CLASSES ARE DEFINED AS FOLLOWS:
1=UNSTABLE, LOW WIND 2=UNSTABLE, MODERATE WIND 3=UNSTABLE, HIGH WIND
4=NEUTRAL, LOW WIND 5=NEUTRAL MODERATE WIND 6=NEUTRAL, HIGH WIND
7=STABLE, LOW WIND 8=STABLE, MODERATE WIND 9=STABLE, HIGH WIND

PLUME LENGTH FREQUENCY TABLE

CIRCULAR MECHANICAL DRAFT COOLING TOWERS - CATAWBA NUCLEAR STATION

SEASON=FALL

DISTANCE FROM TOWER (M)	WIND FROM N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	SUM
	PLUME HEADED S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	SUM
50.	8.23	8.87	14.51	4.82	5.20	3.41	4.02	3.41	5.08	12.10	10.78	4.41	4.11	3.20	4.02	3.82	100.00
100.	8.23	8.87	14.51	4.82	5.20	3.41	4.02	3.41	5.08	12.10	10.78	4.41	4.11	3.20	4.02	3.82	100.00
150.	7.26	7.73	12.90	4.00	4.17	2.47	2.56	2.29	4.23	9.99	8.87	3.26	3.20	2.38	3.35	3.32	81.96
200.	3.82	7.43	12.72	1.59	2.12	1.65	1.38	1.18	2.32	9.52	8.49	1.97	1.70	1.73	2.20	1.59	61.40
250.	3.11	4.60	9.08	1.41	1.91	0.94	0.76	1.09	2.03	5.58	5.64	1.82	1.50	0.85	1.29	1.32	43.30
300.	2.91	4.96	9.08	1.29	1.79	0.71	0.56	0.97	1.88	5.58	5.64	1.70	1.44	0.73	0.94	1.09	41.27
350.	2.91	4.70	8.49	1.29	1.79	0.71	0.56	0.97	1.88	5.41	5.26	1.70	1.44	0.73	0.94	1.09	39.86
400.	2.91	4.70	8.49	1.29	1.79	0.71	0.50	0.97	1.88	5.41	5.26	1.70	1.44	0.68	0.68	1.09	39.48
450.	2.91	4.49	8.25	1.29	1.79	0.71	0.50	0.97	1.88	5.20	5.02	1.70	1.44	0.68	0.68	1.09	38.60
500.	2.91	4.26	7.55	1.29	1.79	0.71	0.50	0.97	1.88	4.85	4.76	1.70	1.44	0.68	0.68	1.09	37.04
550.	2.91	4.26	7.55	1.29	1.79	0.71	0.50	0.97	1.88	4.85	4.76	1.70	1.44	0.68	0.68	1.09	37.04
600.	2.91	4.26	7.55	1.29	1.79	0.71	0.50	0.97	1.88	4.85	4.76	1.70	1.44	0.68	0.68	1.09	37.04
650.	2.91	4.26	7.55	1.29	1.79	0.71	0.50	0.97	1.88	4.85	4.76	1.70	1.44	0.68	0.68	1.09	37.04
700.	2.91	4.26	7.55	1.29	1.79	0.71	0.50	0.97	1.88	4.85	4.76	1.70	1.44	0.68	0.68	1.09	37.04
750.	2.91	4.26	7.55	1.29	1.79	0.71	0.50	0.97	1.88	4.85	4.76	1.70	1.44	0.68	0.68	1.09	37.04
800.	2.91	4.26	7.55	1.29	1.79	0.71	0.50	0.97	1.88	4.85	4.76	1.70	1.44	0.68	0.68	1.09	37.04
850.	2.91	4.26	7.55	1.29	1.79	0.71	0.50	0.97	1.88	4.85	4.76	1.70	1.44	0.68	0.68	1.09	37.04
900.	2.91	4.26	7.55	1.29	1.79	0.71	0.50	0.97	1.88	4.85	4.76	1.70	1.44	0.68	0.68	1.09	37.04
950.	2.91	4.00	7.17	1.29	1.79	0.71	0.50	0.97	1.88	4.67	4.55	1.70	1.44	0.68	0.68	1.09	36.02
1000.	2.91	3.88	6.79	1.29	1.79	0.71	0.50	0.97	1.88	4.38	4.29	1.70	1.44	0.68	0.68	1.09	34.96
1050.	2.91	3.88	6.79	1.29	1.79	0.71	0.50	0.97	1.88	4.38	4.29	1.70	1.44	0.68	0.68	1.09	34.96
1100.	2.91	3.88	6.79	1.29	1.79	0.68	0.47	0.97	1.88	4.38	4.29	1.70	1.44	0.53	0.50	1.09	34.58
1150.	2.91	3.61	6.17	1.29	1.79	0.68	0.47	0.97	1.88	4.05	4.00	1.70	1.44	0.53	0.50	1.09	33.08
1200.	2.91	3.61	6.17	1.29	1.79	0.68	0.47	0.97	1.88	4.05	4.00	1.70	1.44	0.53	0.50	1.09	33.08
1250.	2.76	3.61	6.17	1.06	1.73	0.68	0.47	0.88	1.62	4.05	4.00	1.53	1.29	0.53	0.50	1.06	31.93
1300.	2.76	3.61	6.17	1.06	1.73	0.68	0.47	0.88	1.62	4.05	4.00	1.53	1.29	0.53	0.50	1.06	31.93
1350.	2.76	3.61	6.17	1.06	1.73	0.68	0.47	0.88	1.62	4.05	4.00	1.53	1.29	0.53	0.50	1.06	31.93
1400.	2.41	3.61	6.17	0.85	1.59	0.68	0.47	0.85	1.53	4.05	4.00	1.41	1.20	0.53	0.50	0.94	30.79
1450.	2.41	3.61	6.17	0.85	1.59	0.68	0.47	0.85	1.53	4.05	4.00	1.41	1.20	0.53	0.50	0.94	30.79
1500.	1.97	3.61	6.17	0.82	1.56	0.68	0.47	0.68	1.38	4.05	4.00	1.23	1.00	0.53	0.50	0.76	29.41
1550.	1.97	3.61	6.17	0.82	1.56	0.68	0.47	0.68	1.38	4.05	4.00	1.23	1.00	0.53	0.50	0.76	29.41
1600.	1.97	3.32	5.73	0.82	1.56	0.68	0.47	0.68	1.38	3.88	3.76	1.23	1.00	0.53	0.50	0.76	28.26
1650.	1.97	3.06	5.32	0.82	1.56	0.59	0.38	0.68	1.38	3.70	3.47	1.23	1.00	0.38	0.44	0.76	26.73
1700.	1.97	3.06	5.32	0.82	1.56	0.59	0.38	0.68	1.33	3.70	3.47	1.23	1.00	0.38	0.44	0.76	26.73
1750.	1.73	3.06	5.32	0.76	1.44	0.59	0.38	0.62	1.18	3.70	3.47	1.06	0.91	0.38	0.44	0.71	25.73
1800.	1.73	3.06	5.32	0.76	1.44	0.59	0.38	0.62	1.18	3.70	3.47	1.06	0.91	0.38	0.44	0.71	25.73
1850.	1.73	2.73	4.79	0.76	1.44	0.59	0.38	0.62	1.18	3.17	3.20	1.06	0.91	0.38	0.44	0.71	24.09
1900.	1.73	2.73	4.79	0.76	1.44	0.59	0.38	0.62	1.18	3.17	3.20	1.06	0.91	0.38	0.44	0.71	24.09
1950.	1.73	2.73	4.79	0.76	1.44	0.59	0.38	0.62	1.18	3.17	3.20	1.06	0.91	0.38	0.44	0.71	24.09
2000.	1.73	2.73	4.79	0.76	1.44	0.59	0.38	0.62	1.18	3.17	3.20	1.06	0.91	0.38	0.44	0.71	24.09
2050.	1.73	2.38	4.32	0.76	1.44	0.53	0.35	0.62	1.18	2.97	2.91	1.06	0.91	0.26	0.32	0.71	22.44
2100.	1.53	2.38	4.32	0.65	1.38	0.53	0.35	0.59	1.03	2.97	2.91	0.85	0.76	0.26	0.32	0.50	21.33
2150.	1.53	2.38	4.32	0.65	1.38	0.53	0.35	0.59	1.03	2.97	2.91	0.85	0.76	0.26	0.32	0.50	21.33
2200.	1.53	2.38	4.32	0.65	1.38	0.53	0.35	0.59	1.03	2.97	2.91	0.85	0.76	0.26	0.32	0.50	21.33
2250.	1.53	2.38	4.32	0.65	1.38	0.53	0.35	0.59	1.03	2.97	2.91	0.85	0.76	0.26	0.32	0.50	21.33
2300.	1.53	2.38	4.32	0.65	1.38	0.53	0.35	0.59	1.03	2.97	2.91	0.85	0.76	0.26	0.32	0.50	21.33
2350.	1.53	2.38	4.32	0.65	1.38	0.53	0.35	0.59	1.03	2.97	2.91	0.85	0.76	0.26	0.32	0.50	21.33
2400.	1.53	2.38	4.32	0.65	1.38	0.53	0.35	0.59	1.03	2.97	2.91	0.85	0.76	0.26	0.32	0.50	21.33
2450.	1.53	2.12	3.82	0.65	1.38	0.53	0.35	0.59	1.03	2.64	2.67	0.85	0.76	0.26	0.32	0.50	20.01
2500.	1.53	2.12	3.82	0.65	1.38	0.53	0.35	0.59	1.03	2.64	2.67	0.85	0.76	0.26	0.32	0.50	20.01

PLUME LENGTH FREQUENCY TABLE

CIRCULAR MECHANICAL DRAFT COOLING TOWERS - CATAWBA NUCLEAR STATION

SEASON=FALL

DISTANCE FROM TOWER (M)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	SUM
	WIND FROM																
	PLUME HEADED																
	S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	SUM
2550.	1.53	2.12	3.82	0.65	1.38	0.53	0.35	0.59	1.03	2.64	2.67	0.85	0.76	0.26	0.32	0.50	20.01
2600.	1.53	2.12	3.82	0.65	1.38	0.53	0.35	0.59	1.03	2.64	2.67	0.85	0.76	0.26	0.32	0.50	20.01
2650.	1.53	2.12	3.82	0.65	1.38	0.53	0.35	0.59	1.03	2.64	2.67	0.85	0.76	0.26	0.32	0.50	20.01
2700.	1.53	2.12	3.82	0.65	1.38	0.53	0.35	0.59	1.03	2.64	2.67	0.85	0.76	0.26	0.32	0.50	20.01
2750.	1.53	2.12	3.82	0.65	1.38	0.53	0.35	0.59	1.03	2.64	2.67	0.85	0.76	0.26	0.32	0.50	20.01
2800.	1.53	2.12	3.82	0.65	1.38	0.53	0.35	0.59	1.03	2.64	2.67	0.85	0.76	0.26	0.32	0.50	20.01
2850.	1.53	2.12	3.82	0.65	1.38	0.53	0.35	0.59	1.03	2.64	2.67	0.85	0.76	0.26	0.32	0.50	20.01
2900.	1.29	2.12	3.82	0.56	1.20	0.53	0.35	0.47	0.97	2.64	2.67	0.68	0.59	0.26	0.32	0.41	18.89
2950.	1.29	2.12	3.82	0.56	1.20	0.53	0.35	0.47	0.97	2.64	2.67	0.68	0.59	0.26	0.32	0.41	18.89
3000.	1.29	2.12	3.82	0.56	1.20	0.53	0.35	0.47	0.97	2.64	2.67	0.68	0.59	0.26	0.32	0.41	18.89
3050.	1.29	2.12	3.82	0.56	1.20	0.53	0.35	0.47	0.97	2.64	2.67	0.68	0.59	0.26	0.32	0.41	18.89
3100.	1.29	2.12	3.82	0.56	1.20	0.53	0.35	0.47	0.97	2.64	2.67	0.68	0.59	0.26	0.32	0.41	18.89
3150.	1.29	1.73	3.35	0.56	1.20	0.53	0.35	0.47	0.97	2.14	2.06	0.68	0.59	0.26	0.32	0.41	16.92
3200.	1.29	1.73	3.35	0.56	1.20	0.53	0.35	0.47	0.97	2.14	2.06	0.68	0.59	0.26	0.32	0.41	16.92
3250.	1.29	1.73	3.35	0.56	1.20	0.53	0.35	0.47	0.97	2.14	2.06	0.68	0.59	0.26	0.32	0.41	16.92
3300.	1.29	1.73	3.35	0.56	1.20	0.53	0.35	0.47	0.97	2.14	2.06	0.68	0.59	0.26	0.32	0.41	16.92
3350.	1.29	1.73	3.35	0.56	1.20	0.53	0.35	0.47	0.97	2.14	2.06	0.68	0.59	0.26	0.32	0.41	16.92
3400.	1.29	1.73	3.35	0.56	1.20	0.53	0.35	0.47	0.97	2.14	2.06	0.68	0.59	0.26	0.32	0.41	16.92
3450.	1.29	1.73	3.35	0.56	1.20	0.53	0.35	0.47	0.97	2.14	2.06	0.68	0.59	0.26	0.32	0.41	16.92
3500.	1.29	1.73	3.35	0.56	1.20	0.53	0.35	0.47	0.97	2.14	2.06	0.68	0.59	0.26	0.32	0.41	16.92
3550.	1.29	1.73	3.35	0.56	1.20	0.53	0.35	0.47	0.97	2.14	2.06	0.68	0.59	0.26	0.32	0.41	16.92
3600.	1.29	1.73	3.35	0.56	1.20	0.53	0.35	0.47	0.97	2.14	2.06	0.68	0.59	0.26	0.32	0.41	16.92
3650.	1.29	1.73	3.35	0.56	1.20	0.53	0.35	0.47	0.97	2.14	2.06	0.68	0.59	0.26	0.32	0.41	16.92
3700.	0.97	1.73	3.35	0.50	0.97	0.53	0.35	0.38	0.88	2.14	2.06	0.50	0.38	0.26	0.32	0.32	15.66
3750.	0.97	1.73	3.35	0.50	0.97	0.53	0.35	0.38	0.88	2.14	2.06	0.50	0.38	0.26	0.32	0.32	15.66
3800.	0.97	1.73	3.35	0.50	0.97	0.53	0.35	0.38	0.88	2.14	2.06	0.50	0.38	0.26	0.32	0.32	15.66
3850.	0.97	1.73	3.35	0.50	0.97	0.53	0.35	0.38	0.88	2.14	2.06	0.50	0.38	0.26	0.32	0.32	15.66
3900.	0.97	1.29	2.88	0.50	0.97	0.53	0.35	0.38	0.88	1.79	1.59	0.50	0.38	0.26	0.32	0.32	13.92
3950.	0.97	1.29	2.88	0.50	0.97	0.53	0.35	0.38	0.88	1.79	1.59	0.50	0.38	0.26	0.32	0.32	13.92
4000.	0.97	1.29	2.88	0.50	0.97	0.53	0.35	0.38	0.88	1.79	1.59	0.50	0.38	0.26	0.32	0.32	13.92
4050.	0.97	1.29	2.88	0.50	0.97	0.53	0.35	0.38	0.88	1.79	1.59	0.50	0.38	0.26	0.32	0.32	13.92
4100.	0.97	1.29	2.88	0.50	0.97	0.53	0.35	0.38	0.88	1.79	1.59	0.50	0.38	0.26	0.32	0.32	13.92
4150.	0.97	1.29	2.88	0.50	0.97	0.53	0.35	0.38	0.88	1.79	1.59	0.50	0.38	0.26	0.32	0.32	13.92
4200.	0.97	1.29	2.88	0.50	0.97	0.53	0.35	0.38	0.88	1.79	1.59	0.50	0.38	0.26	0.32	0.32	13.92
4250.	0.97	1.29	2.88	0.50	0.97	0.53	0.35	0.38	0.88	1.79	1.59	0.50	0.38	0.26	0.32	0.32	13.92
4300.	0.97	1.29	2.88	0.50	0.97	0.53	0.35	0.38	0.88	1.79	1.59	0.50	0.38	0.26	0.32	0.32	13.92
4350.	0.97	1.29	2.88	0.50	0.97	0.53	0.35	0.38	0.88	1.79	1.59	0.50	0.38	0.26	0.32	0.32	13.92
4400.	0.97	1.29	2.88	0.50	0.97	0.53	0.35	0.38	0.88	1.79	1.59	0.50	0.38	0.26	0.32	0.32	13.92
4450.	0.97	1.29	2.88	0.50	0.97	0.53	0.35	0.38	0.88	1.79	1.59	0.50	0.38	0.26	0.32	0.32	13.92
4500.	0.97	1.29	2.88	0.50	0.97	0.53	0.35	0.38	0.88	1.79	1.59	0.50	0.38	0.26	0.32	0.32	13.92
4550.	0.97	1.29	2.88	0.50	0.97	0.53	0.35	0.38	0.88	1.79	1.59	0.50	0.38	0.26	0.32	0.32	13.92
4600.	0.47	1.29	2.88	0.38	0.71	0.53	0.35	0.24	0.65	1.79	1.59	0.38	0.29	0.26	0.32	0.24	12.37
4650.	0.47	1.29	2.88	0.38	0.71	0.53	0.35	0.24	0.65	1.79	1.59	0.38	0.29	0.26	0.32	0.24	12.37
4700.	0.47	1.29	2.88	0.38	0.71	0.53	0.35	0.24	0.65	1.79	1.59	0.38	0.29	0.26	0.32	0.24	12.37
4750.	0.47	1.29	2.88	0.38	0.71	0.53	0.35	0.24	0.65	1.79	1.59	0.38	0.29	0.26	0.32	0.24	12.37
4800.	0.47	1.29	2.88	0.38	0.71	0.53	0.35	0.24	0.65	1.79	1.59	0.38	0.29	0.26	0.32	0.24	12.37
4850.	0.47	1.29	2.88	0.38	0.71	0.53	0.35	0.24	0.65	1.79	1.59	0.38	0.29	0.26	0.32	0.24	12.37
4900.	0.47	1.29	2.88	0.38	0.71	0.53	0.35	0.24	0.65	1.79	1.59	0.38	0.29	0.26	0.32	0.24	12.37
4950.	0.47	1.29	2.88	0.38	0.71	0.53	0.35	0.24	0.65	1.79	1.59	0.38	0.29	0.26	0.32	0.24	12.37
5000.	0.47	1.29	2.88	0.38	0.71	0.53	0.35	0.24	0.65	1.79	1.59	0.38	0.29	0.26	0.32	0.24	12.37

PLUME HEIGHT FREQUENCY TABLE

CIRCULAR MECHANICAL DRAFT COOLING TOWERS - CATAWBA NUCLEAR STATION

SEASON=FALL

HEIGHT FROM TOWER (M)	WIND FROM PLUME HEADED																
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	SUM
	S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	SUM
10.	8.23	8.87	14.51	4.82	5.20	3.41	4.02	3.41	5.08	12.10	10.78	4.41	4.11	3.20	4.02	3.82	100.00
20.	8.23	8.87	14.51	4.82	5.20	3.41	4.02	3.41	5.08	12.10	10.78	4.41	4.11	3.20	4.02	3.82	100.00
30.	8.23	8.87	14.51	4.82	5.20	3.41	4.02	3.41	5.08	12.10	10.78	4.41	4.11	3.20	4.02	3.82	100.00
40.	8.23	8.87	14.51	4.82	5.20	3.41	4.02	3.41	5.08	12.10	10.78	4.41	4.11	3.20	4.02	3.82	100.00
50.	8.23	8.87	14.51	4.82	5.20	3.41	4.02	3.41	5.08	12.10	10.78	4.29	4.08	3.20	4.02	3.79	99.82
60.	8.23	8.87	14.51	4.82	5.20	3.41	4.02	3.41	5.08	12.04	10.72	4.29	4.08	3.20	4.02	3.79	99.70
70.	8.23	8.87	14.51	4.82	5.20	3.41	4.02	3.41	5.08	12.04	10.72	4.29	4.08	3.20	4.02	3.79	99.70
80.	8.02	8.87	14.51	4.44	4.82	2.82	3.23	2.79	4.76	12.04	10.72	3.79	3.82	2.85	3.82	3.50	94.80
90.	8.02	7.73	12.90	4.44	4.82	2.82	3.23	2.79	4.76	9.93	8.81	3.79	3.82	2.85	3.82	3.50	88.01
100.	6.23	7.58	12.84	3.06	3.32	2.38	2.41	1.85	3.47	9.58	8.58	2.67	2.44	2.35	3.29	2.82	74.85
110.	3.82	7.58	12.84	1.59	2.12	1.97	1.88	1.18	2.32	9.58	8.58	1.97	1.70	2.09	2.85	1.59	63.63
120.	3.82	7.52	12.78	1.59	2.12	1.15	1.00	1.18	2.32	9.58	8.52	1.97	1.70	1.12	1.44	1.59	59.37
130.	3.82	7.52	12.78	1.59	2.12	0.85	0.73	1.18	2.32	9.58	8.52	1.97	1.70	0.97	1.29	1.59	58.52
140.	3.82	6.73	11.60	1.59	2.12	0.85	0.73	1.18	2.32	8.78	7.61	1.97	1.70	0.97	1.29	1.59	54.85
150.	3.47	5.20	9.40	1.59	2.03	0.76	0.65	1.09	2.23	5.90	5.82	1.85	1.62	0.79	1.18	1.50	45.06
160.	3.11	4.96	9.08	1.41	1.91	0.76	0.65	1.09	2.03	5.58	5.64	1.82	1.50	0.79	1.18	1.32	42.83
170.	2.91	4.96	9.08	1.29	1.79	0.76	0.65	0.97	1.88	5.58	5.64	1.70	1.44	0.79	1.18	1.09	41.71
180.	2.91	4.96	9.08	1.29	1.79	0.71	0.56	0.97	1.88	5.58	5.64	1.70	1.44	0.73	0.94	1.09	41.27
190.	2.91	4.96	9.08	1.29	1.79	0.71	0.56	0.97	1.88	5.58	5.64	1.70	1.44	0.73	0.94	1.09	41.27
200.	2.91	4.96	9.08	1.29	1.79	0.71	0.56	0.97	1.88	5.58	5.64	1.70	1.44	0.73	0.94	1.09	41.27
210.	2.91	4.70	8.49	1.29	1.79	0.71	0.56	0.97	1.88	5.41	5.26	1.70	1.44	0.73	0.94	1.09	39.86
220.	2.91	4.70	8.49	1.29	1.79	0.71	0.56	0.97	1.88	5.41	5.26	1.70	1.44	0.73	0.94	1.09	39.86
230.	2.91	4.70	8.49	1.29	1.79	0.71	0.56	0.97	1.88	5.41	5.26	1.70	1.44	0.73	0.94	1.09	39.86
240.	2.91	4.70	8.49	1.29	1.79	0.71	0.56	0.97	1.88	5.41	5.26	1.70	1.44	0.73	0.94	1.09	39.86
250.	2.91	4.70	8.49	1.29	1.79	0.71	0.56	0.97	1.88	5.41	5.26	1.70	1.44	0.68	0.68	1.09	39.48
260.	2.91	4.52	8.28	1.29	1.79	0.71	0.50	0.97	1.88	5.20	4.91	1.70	1.44	0.68	0.68	1.09	38.54
270.	2.91	4.32	8.05	1.29	1.79	0.71	0.50	0.97	1.88	4.99	4.67	1.70	1.44	0.68	0.68	1.09	37.66
280.	2.91	4.32	8.05	1.29	1.79	0.71	0.50	0.97	1.88	4.99	4.67	1.70	1.44	0.68	0.68	1.09	37.66
290.	2.91	4.32	8.05	1.29	1.79	0.71	0.44	0.97	1.88	4.99	4.67	1.70	1.44	0.56	0.62	1.09	37.43
300.	2.91	4.08	7.34	1.29	1.79	0.71	0.44	0.97	1.88	4.64	4.41	1.70	1.44	0.56	0.62	1.09	35.87
310.	2.76	4.08	7.34	1.18	1.73	0.71	0.44	0.85	1.70	4.64	4.41	1.67	1.41	0.56	0.62	1.09	35.19
320.	2.76	4.08	7.34	1.18	1.73	0.71	0.44	0.85	1.70	4.64	4.41	1.67	1.41	0.56	0.62	1.09	35.19
330.	2.76	4.08	7.34	1.18	1.73	0.71	0.44	0.85	1.70	4.64	4.41	1.67	1.41	0.56	0.62	1.09	35.19
340.	2.76	4.08	7.34	1.18	1.73	0.71	0.44	0.85	1.70	4.64	4.41	1.67	1.41	0.56	0.62	1.09	35.19
350.	2.76	4.08	7.34	1.18	1.73	0.71	0.44	0.85	1.70	4.64	4.41	1.67	1.41	0.56	0.62	1.09	35.19
360.	2.76	4.08	7.34	1.18	1.73	0.71	0.44	0.85	1.70	4.64	4.41	1.67	1.41	0.56	0.62	1.09	35.19
370.	2.76	4.08	7.34	1.18	1.73	0.71	0.44	0.85	1.70	4.64	4.41	1.67	1.41	0.56	0.62	1.09	35.19
380.	2.76	4.08	7.34	1.18	1.73	0.71	0.44	0.85	1.70	4.64	4.41	1.67	1.41	0.56	0.62	1.09	35.19
390.	2.76	4.08	7.34	1.18	1.73	0.71	0.44	0.85	1.70	4.64	4.41	1.67	1.41	0.56	0.62	1.09	35.19
400.	2.76	4.08	7.34	1.18	1.73	0.71	0.44	0.85	1.70	4.64	4.41	1.67	1.41	0.56	0.62	1.09	35.19
410.	2.76	4.08	7.34	1.18	1.73	0.71	0.44	0.85	1.70	4.64	4.41	1.67	1.41	0.56	0.62	1.09	35.19
420.	2.76	4.08	7.34	1.18	1.73	0.71	0.44	0.85	1.70	4.64	4.41	1.67	1.41	0.56	0.62	1.09	35.19
430.	2.76	4.08	7.34	1.18	1.73	0.71	0.44	0.85	1.70	4.64	4.41	1.67	1.41	0.56	0.62	1.09	35.19
440.	2.76	4.08	7.34	1.18	1.73	0.71	0.44	0.85	1.70	4.64	4.41	1.67	1.41	0.56	0.62	1.09	35.19
450.	2.76	4.08	7.34	1.18	1.73	0.71	0.44	0.85	1.70	4.64	4.41	1.67	1.41	0.56	0.62	1.09	35.19
460.	2.76	4.05	7.34	1.18	1.70	0.71	0.44	0.85	1.70	4.64	4.41	1.67	1.41	0.56	0.62	1.09	35.13
470.	2.76	3.53	6.32	1.18	1.70	0.71	0.44	0.85	1.70	4.14	3.82	1.67	1.41	0.56	0.59	1.09	32.46
480.	2.76	2.23	4.14	1.18	1.70	0.71	0.44	0.85	1.70	2.97	2.59	1.67	1.41	0.56	0.59	1.09	26.59
490.	2.76	2.23	4.14	1.18	1.70	0.53	0.29	0.85	1.70	2.97	2.59	1.67	1.41	0.15	0.24	1.09	25.50
500.	2.32	1.85	3.67	1.15	1.67	0.53	0.29	0.68	1.56	2.47	1.97	1.50	1.20	0.15	0.24	0.91	22.15

PLUME HEIGHT FREQUENCY TABLE

CIRCULAR MECHANICAL DRAFT COOLING TOWERS - CATAWBA NUCLEAR STATION

SEASON=FALL

HEIGHT FROM TOWER (M)	WIND FROM N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	SUM
	PLUME HEADED S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	SUM
510.	1.38	1.41	3.20	0.53	1.29	0.53	0.29	0.47	0.85	2.12	1.50	0.82	0.73	0.15	0.24	0.50	16.01
520.	1.15	1.41	3.20	0.44	1.12	0.53	0.29	0.35	0.79	2.12	1.50	0.65	0.56	0.15	0.24	0.41	14.89
530.	1.15	1.41	3.20	0.44	1.12	0.53	0.29	0.35	0.79	2.12	1.50	0.65	0.56	0.15	0.24	0.41	14.89
540.	0.82	0.91	2.44	0.38	0.88	0.53	0.29	0.26	0.71	1.65	1.03	0.47	0.35	0.15	0.24	0.32	11.43
550.	0.82	0.59	1.91	0.38	0.88	0.53	0.29	0.26	0.71	1.12	0.76	0.47	0.35	0.15	0.24	0.32	9.78
560.	0.82	0.59	1.91	0.38	0.88	0.53	0.29	0.26	0.71	1.12	0.76	0.47	0.35	0.15	0.24	0.32	9.78
570.	0.82	0.59	1.91	0.38	0.88	0.53	0.29	0.26	0.71	1.12	0.76	0.47	0.35	0.15	0.24	0.32	9.78
580.	0.32	0.00	0.00	0.26	0.62	0.35	0.18	0.12	0.47	0.00	0.00	0.35	0.26	0.09	0.09	0.24	3.35
590.	0.32	0.00	0.00	0.26	0.62	0.35	0.18	0.12	0.47	0.00	0.00	0.35	0.26	0.09	0.09	0.24	3.35
600.	0.32	0.00	0.00	0.26	0.62	0.35	0.18	0.12	0.47	0.00	0.00	0.35	0.26	0.09	0.09	0.24	3.35
610.	0.32	0.00	0.00	0.26	0.62	0.35	0.18	0.12	0.47	0.00	0.00	0.35	0.26	0.09	0.09	0.24	3.35
620.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
630.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
640.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
650.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
660.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
670.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
680.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
690.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
700.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
710.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
720.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
730.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
740.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
750.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
760.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
770.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
780.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
790.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
800.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
810.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
820.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
830.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
840.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
850.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
860.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
870.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
880.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
890.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
900.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
910.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
920.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
930.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
940.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
950.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
960.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
970.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
980.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
990.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1000.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

PLUME RADIUS FREQUENCY TABLE

CIRCULAR MECHANICAL DRAFT COOLING TOWERS - CATAWBA NUCLEAR STATION

SEASON=FALL

MAXIMUM FROM TOWER (M)	WIND FROM N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	SUM
	PLUME HEADED S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	SUM
5.	8.23	8.87	14.51	4.82	5.20	3.41	4.02	3.41	5.08	12.10	10.78	4.41	4.11	3.20	4.02	3.82	100.00
10.	8.23	8.87	14.51	4.82	5.20	3.41	4.02	3.41	5.08	12.10	10.78	4.41	4.11	3.20	4.02	3.82	100.00
15.	8.23	8.87	14.51	4.82	5.20	3.41	4.02	3.41	5.08	12.10	10.78	4.41	4.11	3.20	4.02	3.82	100.00
20.	8.23	8.87	14.51	4.82	5.20	3.41	4.02	3.41	5.08	12.10	10.78	4.41	4.11	3.20	4.02	3.82	100.00
25.	8.02	8.87	14.51	4.44	4.82	2.82	3.23	2.79	4.76	12.10	10.78	3.79	3.82	2.85	3.82	3.50	94.91
30.	7.31	8.55	14.13	3.91	4.14	2.38	2.41	2.17	4.17	11.52	9.96	3.17	3.03	2.35	3.29	3.29	85.78
35.	7.31	7.58	12.84	3.91	4.14	2.38	2.41	2.17	4.17	9.58	8.58	3.17	3.03	2.35	3.29	3.29	80.20
40.	6.73	7.58	12.84	3.44	3.58	2.12	2.00	2.12	3.88	9.58	8.58	3.03	2.85	2.23	3.03	3.08	76.64
45.	6.14	7.58	12.84	2.85	3.29	1.94	1.65	1.88	3.53	9.58	8.58	2.70	2.61	1.91	2.56	2.59	72.21
50.	4.61	7.58	12.84	2.00	2.38	1.56	1.29	1.32	2.50	9.58	8.58	2.23	1.88	1.56	2.09	1.94	63.92
55.	4.05	7.58	12.84	1.67	2.17	1.47	1.26	1.23	2.35	9.58	8.58	2.12	1.76	1.41	1.88	1.67	61.63
60.	3.47	7.05	12.22	1.59	2.03	1.47	1.26	1.09	2.23	9.08	7.81	1.85	1.62	1.41	1.88	1.50	57.55
65.	3.47	6.67	11.49	1.59	2.03	1.47	1.26	1.09	2.23	8.11	7.31	1.85	1.62	1.41	1.88	1.50	54.96
70.	2.91	6.32	11.22	1.29	1.79	1.47	1.26	0.97	1.88	7.61	7.02	1.70	1.44	1.41	1.88	1.09	51.26
75.	2.91	5.82	10.58	1.29	1.79	1.41	1.12	0.97	1.88	6.79	6.40	1.70	1.44	1.29	1.38	1.09	47.85
80.	2.91	4.96	9.08	1.29	1.79	1.41	1.12	0.97	1.88	5.58	5.64	1.70	1.44	1.29	1.38	1.09	43.54
85.	2.91	4.70	8.49	1.29	1.79	1.03	0.79	0.97	1.88	5.41	5.26	1.70	1.44	1.00	0.85	1.09	40.60
90.	2.91	4.26	7.55	1.29	1.79	1.03	0.79	0.97	1.88	4.85	4.76	1.70	1.44	1.00	0.85	1.09	38.16
95.	2.91	4.00	7.17	1.29	1.79	1.03	0.79	0.97	1.88	4.67	4.55	1.70	1.44	1.00	0.85	1.09	37.13
100.	2.91	4.00	7.17	1.29	1.79	1.00	0.76	0.97	1.88	4.67	4.55	1.70	1.44	0.85	0.68	1.09	36.75
105.	2.91	3.88	6.79	1.29	1.79	1.00	0.76	0.97	1.88	4.38	4.29	1.70	1.44	0.85	0.68	1.09	35.69
110.	2.91	3.61	6.17	1.29	1.79	1.00	0.76	0.97	1.88	4.05	4.00	1.70	1.44	0.85	0.68	1.09	34.19
115.	2.91	3.61	6.17	1.29	1.79	0.97	0.73	0.97	1.88	4.05	4.00	1.70	1.44	0.68	0.65	1.09	33.93
120.	2.76	3.61	6.17	1.18	1.73	0.97	0.73	0.85	1.70	4.05	4.00	1.67	1.41	0.68	0.65	1.09	33.25
125.	2.76	3.61	6.17	1.18	1.73	0.97	0.73	0.85	1.70	4.05	4.00	1.67	1.41	0.68	0.65	1.09	33.25
130.	2.76	3.61	6.17	1.18	1.73	0.97	0.68	0.85	1.70	4.05	4.00	1.67	1.41	0.56	0.59	1.09	33.02
135.	2.61	3.44	5.96	0.94	1.67	0.97	0.68	0.76	1.44	3.85	3.64	1.50	1.26	0.56	0.59	1.06	30.93
140.	2.61	3.44	5.96	0.94	1.67	0.97	0.68	0.76	1.44	3.85	3.64	1.50	1.26	0.56	0.59	1.06	30.93
145.	2.61	3.44	5.96	0.94	1.67	0.97	0.68	0.76	1.44	3.85	3.64	1.50	1.26	0.56	0.59	1.06	30.93
150.	2.61	3.44	5.96	0.94	1.67	0.97	0.68	0.76	1.44	3.85	3.64	1.50	1.26	0.56	0.59	1.06	30.93
155.	2.26	3.44	5.96	0.73	1.53	0.85	0.53	0.73	1.35	3.85	3.64	1.38	1.18	0.47	0.56	0.94	29.41
160.	2.26	3.44	5.96	0.73	1.53	0.85	0.53	0.73	1.35	3.85	3.64	1.38	1.18	0.47	0.56	0.94	29.41
165.	1.82	3.44	5.96	0.71	1.50	0.85	0.53	0.56	1.20	3.85	3.64	1.20	0.97	0.47	0.56	0.76	28.03
170.	1.82	3.14	5.52	0.71	1.50	0.85	0.53	0.56	1.20	3.67	3.41	1.20	0.97	0.47	0.56	0.76	26.88
175.	1.82	3.14	5.52	0.71	1.50	0.68	0.41	0.56	1.20	3.67	3.41	1.20	0.97	0.41	0.44	0.76	26.41
180.	1.82	2.56	4.58	0.71	1.50	0.59	0.32	0.56	1.20	2.97	2.85	1.20	0.97	0.26	0.38	0.76	23.24
185.	1.82	2.56	4.58	0.71	1.50	0.59	0.32	0.56	1.20	2.97	2.85	1.20	0.97	0.26	0.38	0.76	23.24
190.	1.82	2.56	4.58	0.71	1.50	0.59	0.32	0.56	1.20	2.97	2.85	1.20	0.97	0.26	0.38	0.76	23.24
195.	1.82	2.56	4.58	0.71	1.50	0.59	0.32	0.56	1.20	2.97	2.85	1.20	0.97	0.26	0.38	0.76	23.24
200.	1.59	2.56	4.58	0.65	1.38	0.59	0.32	0.50	1.00	2.97	2.85	1.03	0.88	0.26	0.38	0.71	22.24
205.	1.59	2.56	4.58	0.65	1.38	0.59	0.32	0.50	1.00	2.97	2.85	1.03	0.88	0.26	0.38	0.71	22.24
210.	1.59	2.20	4.11	0.65	1.38	0.53	0.29	0.50	1.00	2.76	2.56	1.03	0.88	0.15	0.26	0.71	20.59
215.	1.59	2.20	4.11	0.65	1.38	0.53	0.29	0.50	1.00	2.76	2.56	1.03	0.88	0.15	0.26	0.71	20.59
220.	1.59	2.20	4.11	0.65	1.38	0.53	0.29	0.50	1.00	2.76	2.56	1.03	0.88	0.15	0.26	0.71	20.59
225.	1.59	2.20	4.11	0.65	1.38	0.53	0.29	0.50	1.00	2.76	2.56	1.03	0.88	0.15	0.26	0.71	20.59
230.	1.38	2.20	4.11	0.53	1.32	0.53	0.29	0.47	0.85	2.76	2.56	0.82	0.73	0.15	0.26	0.50	19.48
235.	1.38	2.20	4.11	0.53	1.32	0.53	0.29	0.47	0.85	2.76	2.56	0.82	0.73	0.15	0.26	0.50	19.48
240.	1.38	1.94	3.61	0.53	1.32	0.53	0.29	0.47	0.85	2.44	2.32	0.82	0.73	0.15	0.26	0.50	18.16
245.	1.38	1.94	3.61	0.53	1.32	0.53	0.29	0.47	0.85	2.44	2.32	0.82	0.73	0.15	0.26	0.50	18.16
250.	1.38	1.94	3.61	0.53	1.32	0.53	0.29	0.47	0.85	2.44	2.32	0.82	0.73	0.15	0.26	0.50	18.16

PLUME RADIUS FREQUENCY TABLE

CIRCULAR MECHANICAL DRAFT COOLING TOWERS - CATAWBA NUCLEAR STATION
SEASON=FALL

MAXIMUM FROM TOWER (M)	WIND FROM N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	SUM
	PLUME HEADED S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	SUM
255.	1.38	1.94	3.61	0.53	1.32	0.53	0.29	0.47	0.85	2.44	2.32	0.82	0.73	0.15	0.26	0.50	18.16
260.	1.38	1.94	3.61	0.53	1.32	0.53	0.29	0.47	0.85	2.44	2.32	0.82	0.73	0.15	0.26	0.50	18.16
265.	1.38	1.94	3.61	0.53	1.32	0.53	0.29	0.47	0.85	2.44	2.32	0.82	0.73	0.15	0.26	0.50	18.16
270.	1.38	1.94	3.61	0.53	1.32	0.53	0.29	0.47	0.85	2.44	2.32	0.82	0.73	0.15	0.26	0.50	18.16
275.	1.15	1.94	3.61	0.44	1.15	0.53	0.29	0.35	0.79	2.44	2.32	0.65	0.56	0.15	0.26	0.41	17.04
280.	1.15	1.56	3.14	0.44	1.15	0.53	0.29	0.35	0.79	1.94	1.70	0.65	0.56	0.15	0.26	0.41	15.07
285.	1.15	1.56	3.14	0.44	1.15	0.53	0.29	0.35	0.79	1.94	1.70	0.65	0.56	0.15	0.26	0.41	15.07
290.	1.15	1.56	3.14	0.44	1.15	0.53	0.29	0.35	0.79	1.94	1.70	0.65	0.56	0.15	0.26	0.41	15.07
295.	1.15	1.56	3.14	0.44	1.15	0.53	0.29	0.35	0.79	1.94	1.70	0.65	0.56	0.15	0.26	0.41	15.07
300.	1.15	1.56	3.14	0.44	1.15	0.53	0.29	0.35	0.79	1.94	1.70	0.65	0.56	0.15	0.26	0.41	15.07
305.	1.15	1.56	3.14	0.44	1.15	0.53	0.29	0.35	0.79	1.94	1.70	0.65	0.56	0.15	0.26	0.41	15.07
310.	1.15	1.56	3.14	0.44	1.15	0.53	0.29	0.35	0.79	1.94	1.70	0.65	0.56	0.15	0.26	0.41	15.07
315.	0.82	1.56	3.14	0.38	0.91	0.53	0.29	0.26	0.71	1.94	1.70	0.47	0.35	0.15	0.26	0.32	13.81
320.	0.82	1.56	3.14	0.38	0.91	0.53	0.29	0.26	0.71	1.94	1.70	0.47	0.35	0.15	0.26	0.32	13.81
325.	0.82	1.12	2.67	0.38	0.91	0.53	0.29	0.26	0.71	1.59	1.23	0.47	0.35	0.15	0.26	0.32	12.07
330.	0.82	1.12	2.67	0.38	0.91	0.53	0.29	0.26	0.71	1.59	1.23	0.47	0.35	0.15	0.26	0.32	12.07
335.	0.82	1.12	2.67	0.38	0.91	0.53	0.29	0.26	0.71	1.59	1.23	0.47	0.35	0.15	0.26	0.32	12.07
340.	0.82	1.12	2.67	0.38	0.91	0.53	0.29	0.26	0.71	1.59	1.23	0.47	0.35	0.15	0.26	0.32	12.07
345.	0.82	1.12	2.67	0.38	0.91	0.53	0.29	0.26	0.71	1.59	1.23	0.47	0.35	0.15	0.26	0.32	12.07
350.	0.82	1.12	2.67	0.38	0.91	0.53	0.29	0.26	0.71	1.59	1.23	0.47	0.35	0.15	0.26	0.32	12.07
355.	0.82	1.12	2.67	0.38	0.91	0.53	0.29	0.26	0.71	1.59	1.23	0.47	0.35	0.15	0.26	0.32	12.07
360.	0.82	1.12	2.67	0.38	0.91	0.53	0.29	0.26	0.71	1.59	1.23	0.47	0.35	0.15	0.26	0.32	12.07
365.	0.82	1.12	2.67	0.38	0.91	0.53	0.29	0.26	0.71	1.59	1.23	0.47	0.35	0.15	0.26	0.32	12.07
370.	0.82	1.12	2.67	0.38	0.91	0.53	0.29	0.26	0.71	1.59	1.23	0.47	0.35	0.15	0.26	0.32	12.07
375.	0.82	1.12	2.67	0.38	0.91	0.53	0.29	0.26	0.71	1.59	1.23	0.47	0.35	0.15	0.26	0.32	12.07
380.	0.82	1.12	2.67	0.38	0.91	0.53	0.29	0.26	0.71	1.59	1.23	0.47	0.35	0.15	0.26	0.32	12.07
385.	0.82	1.12	2.67	0.38	0.91	0.53	0.29	0.26	0.71	1.59	1.23	0.47	0.35	0.15	0.26	0.32	12.07
390.	0.82	1.12	2.67	0.38	0.91	0.53	0.29	0.26	0.71	1.59	1.23	0.47	0.35	0.15	0.26	0.32	12.07
395.	0.82	1.12	2.67	0.38	0.91	0.53	0.29	0.26	0.71	1.59	1.23	0.47	0.35	0.15	0.26	0.32	12.07
400.	0.82	1.12	2.67	0.38	0.91	0.53	0.29	0.26	0.71	1.59	1.23	0.47	0.35	0.15	0.26	0.32	12.07
405.	0.82	1.12	2.67	0.38	0.91	0.53	0.29	0.26	0.71	1.59	1.23	0.47	0.35	0.15	0.26	0.32	12.07
410.	0.32	1.12	2.67	0.26	0.65	0.53	0.29	0.12	0.47	1.59	1.23	0.35	0.26	0.15	0.26	0.24	10.52
415.	0.32	1.12	2.67	0.26	0.65	0.35	0.18	0.12	0.47	1.59	1.23	0.35	0.26	0.09	0.12	0.24	10.02
420.	0.32	1.12	2.67	0.26	0.65	0.35	0.18	0.12	0.47	1.59	1.23	0.35	0.26	0.09	0.12	0.24	10.02
425.	0.32	1.12	2.67	0.26	0.65	0.35	0.18	0.12	0.47	1.59	1.23	0.35	0.26	0.09	0.12	0.24	10.02
430.	0.32	0.62	1.91	0.26	0.65	0.35	0.18	0.12	0.47	1.12	0.76	0.35	0.26	0.09	0.12	0.24	7.81
435.	0.32	0.62	1.91	0.26	0.65	0.35	0.18	0.12	0.47	1.12	0.76	0.35	0.26	0.09	0.12	0.24	7.81
440.	0.32	0.62	1.91	0.26	0.65	0.35	0.18	0.12	0.47	1.12	0.76	0.35	0.26	0.09	0.12	0.24	7.81
445.	0.32	0.62	1.91	0.26	0.65	0.35	0.18	0.12	0.47	1.12	0.76	0.35	0.26	0.09	0.12	0.24	7.81
450.	0.32	0.62	1.91	0.26	0.65	0.35	0.18	0.12	0.47	1.12	0.76	0.35	0.26	0.09	0.12	0.24	7.81
455.	0.32	0.62	1.91	0.26	0.65	0.35	0.18	0.12	0.47	1.12	0.76	0.35	0.26	0.09	0.12	0.24	7.81
460.	0.32	0.62	1.91	0.26	0.65	0.35	0.18	0.12	0.47	1.12	0.76	0.35	0.26	0.09	0.12	0.24	7.81
465.	0.32	0.62	1.91	0.26	0.65	0.35	0.18	0.12	0.47	1.12	0.76	0.35	0.26	0.09	0.12	0.24	7.81
470.	0.32	0.62	1.91	0.26	0.65	0.35	0.18	0.12	0.47	1.12	0.76	0.35	0.26	0.09	0.12	0.24	7.81
475.	0.32	0.62	1.91	0.26	0.65	0.35	0.18	0.12	0.47	1.12	0.76	0.35	0.26	0.09	0.12	0.24	7.81
480.	0.32	0.62	1.91	0.26	0.65	0.35	0.18	0.12	0.47	1.12	0.76	0.35	0.26	0.09	0.09	0.24	7.78
485.	0.32	0.62	1.91	0.26	0.65	0.35	0.18	0.12	0.47	1.12	0.76	0.35	0.26	0.09	0.09	0.24	7.78
490.	0.32	0.62	1.91	0.26	0.65	0.35	0.18	0.12	0.47	1.12	0.76	0.35	0.26	0.09	0.09	0.24	7.78
495.	0.32	0.62	1.91	0.26	0.62	0.35	0.18	0.12	0.47	1.12	0.76	0.35	0.26	0.09	0.09	0.24	7.76
500.	0.32	0.59	1.91	0.26	0.62	0.35	0.18	0.12	0.47	1.12	0.76	0.35	0.26	0.09	0.09	0.24	7.73

HOURS OF PLUME FOGGING TABLE

CIRCULAR MECHANICAL DRAFT COOLING TOWERS - CATAWBA NUCLEAR STATION

SEASON=FALL

DISTANCE FROM TOWER (MI)	WIND FROM PLUME HEADED																
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	AVG
	S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	AVG
100.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
300.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
400.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
500.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
600.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
700.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
800.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
900.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1000.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1100.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1200.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1300.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1400.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1500.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1600.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

********** HOURS OF RIME ICING TABLE **********

CIRCULAR MECHANICAL DRAFT COOLING TOWERS - CATAWBA NUCLEAR STATION

SEASON=FALL

DISTANCE FROM TOWER (M)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	AVG
	********** WIND FROM PLUME HEADED **********																
	S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	AVG
100.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
300.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
400.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
500.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
600.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
700.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
800.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
900.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1000.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1100.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1200.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1300.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1400.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1500.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1600.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

FREQUENCY PERCENTAGE BY CATEGORY AND WIND DIRECTION

CIRCULAR MECHANICAL DRAFT COOLING TOWERS - CATAWBA NUCLEAR STATION

SEASON=WINTER

CATEGORY NUMBER	WIND FROM N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
	PLUME HEADED S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	SUM
11	0.00	0.02	0.09	0.00	0.00	0.10	0.05	0.02	0.02	0.41	0.29	0.02	0.00	0.00	0.00	0.00	0.94
12	0.00	0.02	0.05	0.17	0.14	0.10	0.10	0.05	0.12	0.60	0.53	0.00	0.24	0.02	0.02	0.05	2.21
13	0.00	0.00	0.02	0.00	0.02	0.07	0.02	0.00	0.05	0.10	0.02	0.00	0.00	0.00	0.00	0.00	0.31
14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.07
15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.22	0.05	0.02	0.00	0.00	0.00	0.31
16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17	0.00	0.00	0.02	0.00	0.02	0.00	0.02	0.02	0.05	0.07	0.10	0.02	0.00	0.00	0.00	0.00	0.34
18	0.07	0.07	0.10	0.10	0.05	0.02	0.12	0.15	0.07	0.24	0.12	0.15	0.07	0.07	0.07	0.02	1.51
19	0.02	0.00	0.02	0.00	0.05	0.02	0.02	0.00	0.02	0.02	0.02	0.00	0.05	0.00	0.00	0.00	0.26
20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.02
21	0.12	0.02	0.12	0.02	0.12	0.12	0.05	0.14	0.10	0.19	0.31	0.07	0.05	0.02	0.02	0.10	1.59
22	0.14	0.07	0.17	0.14	0.07	0.02	0.14	0.12	0.14	0.24	0.38	0.14	0.12	0.12	0.10	0.05	2.19
23	0.05	0.07	0.12	0.05	0.17	0.05	0.07	0.07	0.10	0.46	0.36	0.10	0.12	0.22	0.02	0.07	2.09
24	0.10	0.10	0.14	0.05	0.07	0.07	0.07	0.14	0.12	0.31	0.31	0.19	0.17	0.07	0.12	0.02	2.07
25	0.22	0.10	0.14	0.05	0.10	0.02	0.10	0.02	0.17	0.41	0.36	0.14	0.00	0.10	0.10	0.07	2.09
26	0.14	0.12	0.24	0.12	0.02	0.07	0.19	0.05	0.17	0.50	0.72	0.26	0.14	0.12	0.22	0.12	3.22
27	0.19	0.12	0.22	0.07	0.12	0.05	0.12	0.05	0.29	0.24	0.36	0.22	0.07	0.22	0.07	0.05	2.45
28	0.26	0.29	0.19	0.02	0.12	0.14	0.10	0.10	0.19	0.46	0.48	0.17	0.22	0.34	0.19	0.24	3.51
29	0.26	0.14	0.22	0.10	0.17	0.14	0.14	0.19	0.05	0.55	0.70	0.19	0.22	0.22	0.17	0.24	3.70
30	0.07	0.14	0.07	0.10	0.17	0.10	0.07	0.10	0.10	0.24	0.38	0.14	0.26	0.34	0.24	0.24	2.77
31	0.43	0.29	0.36	0.10	0.05	0.02	0.12	0.07	0.17	0.58	0.50	0.19	0.14	0.26	0.41	0.31	4.02
32	0.34	0.26	0.22	0.10	0.19	0.07	0.02	0.10	0.17	0.34	0.31	0.24	0.29	0.24	0.29	0.26	3.44
33	0.36	0.22	0.19	0.12	0.07	0.14	0.10	0.10	0.31	0.38	0.38	0.14	0.38	0.36	0.19	0.31	3.77
34	0.31	0.19	0.36	0.10	0.14	0.12	0.05	0.10	0.07	0.50	0.41	0.29	0.29	0.26	0.31	0.38	3.90
35	0.63	0.24	0.89	0.19	0.12	0.17	0.29	0.12	0.12	0.60	0.58	0.22	0.14	0.38	0.17	0.31	5.17
36	0.43	0.22	0.43	0.17	0.02	0.10	0.14	0.07	0.14	0.46	0.36	0.26	0.29	0.26	0.31	0.46	4.14
37	0.34	0.58	0.43	0.17	0.05	0.05	0.02	0.17	0.12	0.55	0.60	0.31	0.26	0.31	0.26	0.43	4.66
38	0.46	0.53	0.58	0.12	0.10	0.05	0.12	0.12	0.14	0.58	0.48	0.43	0.48	0.17	0.24	0.38	4.98
39	0.50	0.31	0.72	0.05	0.10	0.10	0.02	0.05	0.14	0.70	0.67	0.17	0.34	0.31	0.58	0.36	5.12
40	0.34	0.43	0.55	0.17	0.14	0.10	0.07	0.19	0.14	0.43	0.58	0.31	0.36	0.29	0.14	0.17	4.42
41	0.14	0.34	0.48	0.12	0.24	0.05	0.12	0.05	0.24	0.60	1.01	0.50	0.46	0.07	0.17	0.14	4.74
42	0.34	0.43	0.43	0.12	0.02	0.07	0.05	0.17	0.41	0.41	0.75	0.29	0.31	0.34	0.26	0.17	4.57
43	1.66	1.42	2.09	0.41	0.38	0.14	0.43	0.31	0.38	1.44	1.51	0.94	1.25	0.43	0.43	0.43	13.68
44	0.17	0.19	0.17	0.05	0.05	0.10	0.00	0.05	0.17	0.12	0.26	0.17	0.07	0.05	0.00	0.00	1.61
45	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.05	0.00	0.00	0.02	0.00	0.00	0.12
TOTALS	8.10	6.95	9.79	2.96	3.10	2.38	2.96	2.91	4.50	12.77	14.24	6.35	6.83	5.63	5.12	5.41	100.00

********** STABILITY CLASS BY WIND DIRECTION **********
CIRCULAR MECHANICAL DRAFT COOLING TOWERS - CATAWBA NUCLEAR STATION
SEASON=WINTER

STABILITY CLASS	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
	PLUME HEADED															
	S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	STAG.
1	0.01	0.02	0.02	0.00	0.00	0.10	0.06	0.07	0.04	0.04	0.06	0.05	0.06	0.11	0.06	0.04	0.00
2	0.02	0.03	0.05	0.03	0.03	0.02	0.03	0.05	0.02	0.02	0.04	0.02	0.01	0.06	0.04	0.03	0.00
3	0.01	0.01	0.02	0.01	0.02	0.01	0.02	0.04	0.00	0.02	0.04	0.02	0.01	0.02	0.02	0.04	0.00
4	0.31	0.23	0.29	0.37	0.29	0.17	0.25	0.13	0.17	0.24	0.29	0.28	0.24	0.15	0.20	0.32	0.00
5	0.44	0.42	0.43	0.40	0.39	0.29	0.38	0.36	0.29	0.43	0.38	0.36	0.39	0.33	0.47	0.46	1.00
6	0.09	0.15	0.09	0.05	0.10	0.09	0.04	0.05	0.15	0.10	0.10	0.12	0.11	0.18	0.11	0.04	0.00
7	0.12	0.15	0.10	0.15	0.17	0.31	0.22	0.30	0.36	0.15	0.09	0.15	0.18	0.15	0.10	0.08	0.00

********** WIND SPEED DISTRIBUTION BY DIRECTION AT REFERENCE HEIGHT OF 200. METERS **********
CIRCULAR MECHANICAL DRAFT COOLING TOWERS - CATAWBA NUCLEAR STATION
SEASON=WINTER

WIND RANGE	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
	PLUME HEADED															
	S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	STAG.
1	0.26	0.21	0.20	0.33	0.46	0.42	0.43	0.40	0.24	0.15	0.11	0.13	0.15	0.15	0.14	0.20	1.00
2	0.56	0.70	0.63	0.61	0.44	0.53	0.46	0.44	0.58	0.56	0.41	0.49	0.49	0.43	0.43	0.50	0.00
3	0.18	0.09	0.17	0.06	0.10	0.05	0.11	0.17	0.18	0.29	0.48	0.38	0.36	0.42	0.43	0.31	0.00

********** COMBINED FACTORS BY WIND DIRECTION **********
CIRCULAR MECHANICAL DRAFT COOLING TOWERS - CATAWBA NUCLEAR STATION
SEASON=WINTER

COMBINED CLASS*	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
	PLUME HEADED															
	S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	STAG.
1	0.01	0.01	0.02	0.01	0.02	0.06	0.05	0.06	0.01	0.01	0.02	0.01	0.01	0.03	0.02	0.02	0.00
2	0.02	0.04	0.05	0.02	0.02	0.07	0.05	0.07	0.03	0.04	0.06	0.05	0.04	0.08	0.05	0.05	0.00
3	0.01	0.01	0.01	0.00	0.01	0.01	0.01	0.03	0.01	0.02	0.07	0.04	0.03	0.08	0.05	0.03	0.00
4	0.19	0.14	0.15	0.25	0.31	0.20	0.27	0.20	0.11	0.10	0.07	0.08	0.09	0.07	0.09	0.15	1.00
5	0.42	0.45	0.45	0.47	0.30	0.24	0.29	0.22	0.27	0.37	0.28	0.31	0.31	0.21	0.28	0.39	0.00
6	0.14	0.06	0.12	0.04	0.07	0.02	0.07	0.08	0.08	0.19	0.32	0.24	0.23	0.20	0.29	0.24	0.00
7	0.05	0.06	0.04	0.07	0.12	0.17	0.11	0.14	0.12	0.04	0.02	0.03	0.04	0.05	0.03	0.02	0.00
8	0.12	0.20	0.12	0.12	0.12	0.21	0.12	0.15	0.28	0.14	0.08	0.13	0.14	0.14	0.09	0.06	0.00
9	0.04	0.03	0.03	0.01	0.03	0.02	0.03	0.06	0.09	0.07	0.09	0.10	0.10	0.14	0.09	0.04	0.00

* COMBINED CLASSES ARE DEFINED AS FOLLOWS:
1=UNSTABLE, LOW WIND 2=UNSTABLE, MODERATE WIND 3=UNSTABLE, HIGH WIND
4=NEUTRAL, LOW WIND 5=NEUTRAL MODERATE WIND 6=NEUTRAL, HIGH WIND
7=STABLE, LOW WIND 8=STABLE, MODERATE WIND 9=STABLE, HIGH WIND

PLUME LENGTH FREQUENCY TABLE

CIRCULAR MECHANICAL DRAFT COOLING TOWERS - CATAWBA NUCLEAR STATION

SEASON=WINTER

DISTANCE FROM TOWER (M)	WIND FROM N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	SUM
	PLUME HEADED S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	SUM
50.	8.10	6.95	9.79	2.96	3.10	2.38	2.96	2.91	4.50	12.77	14.24	6.35	6.83	5.63	5.12	5.41	100.00
100.	8.10	6.95	9.79	2.96	3.10	2.38	2.96	2.91	4.50	12.77	14.24	6.35	6.83	5.63	5.12	5.41	100.00
150.	8.10	6.90	9.74	2.79	2.93	2.19	2.82	2.82	4.31	11.76	13.42	6.30	6.59	5.60	5.10	5.36	96.73
200.	6.01	6.90	9.69	1.88	1.64	1.66	1.88	1.61	2.57	11.59	13.23	4.28	4.93	4.66	4.38	3.82	80.72
250.	5.31	5.94	8.22	1.66	1.37	0.70	0.99	1.42	2.09	8.49	9.55	3.90	4.26	2.36	2.33	3.25	61.72
300.	5.00	5.94	8.22	1.56	1.23	0.63	0.75	1.32	2.02	8.49	9.55	3.61	3.97	1.92	1.76	2.86	58.81
350.	5.00	5.79	8.01	1.56	1.23	0.63	0.75	1.32	2.02	7.93	8.85	3.61	3.97	1.92	1.76	2.86	57.20
400.	5.00	5.79	8.01	1.56	1.23	0.53	0.67	1.32	2.02	7.93	8.85	3.61	3.97	1.59	1.51	2.86	56.45
450.	5.00	5.65	7.93	1.56	1.23	0.53	0.67	1.32	2.02	7.69	8.46	3.61	3.97	1.59	1.51	2.86	55.61
500.	5.00	5.36	7.57	1.56	1.23	0.53	0.67	1.32	2.02	7.12	7.96	3.61	3.97	1.59	1.51	2.86	53.88
550.	5.00	5.36	7.57	1.56	1.23	0.53	0.67	1.32	2.02	7.12	7.96	3.61	3.97	1.59	1.51	2.86	53.88
600.	5.00	5.36	7.57	1.56	1.23	0.53	0.67	1.32	2.02	7.12	7.96	3.61	3.97	1.59	1.51	2.86	53.88
650.	5.00	5.36	7.57	1.56	1.23	0.53	0.67	1.32	2.02	7.12	7.96	3.61	3.97	1.59	1.51	2.86	53.88
700.	5.00	5.36	7.57	1.56	1.23	0.53	0.67	1.32	2.02	7.12	7.96	3.61	3.97	1.59	1.51	2.86	53.88
750.	5.00	5.36	7.57	1.56	1.23	0.53	0.67	1.32	2.02	7.12	7.96	3.61	3.97	1.59	1.51	2.86	53.88
800.	5.00	5.36	7.57	1.56	1.23	0.53	0.67	1.32	2.02	7.12	7.96	3.61	3.97	1.59	1.51	2.86	53.88
850.	5.00	5.36	7.57	1.56	1.23	0.53	0.67	1.32	2.02	7.12	7.96	3.61	3.97	1.59	1.51	2.86	53.88
900.	5.00	5.36	7.57	1.56	1.23	0.53	0.67	1.32	2.02	7.12	7.96	3.61	3.97	1.59	1.51	2.86	53.88
950.	5.00	5.10	7.36	1.56	1.23	0.53	0.67	1.32	2.02	6.78	7.65	3.61	3.97	1.59	1.51	2.86	52.75
1000.	5.00	4.88	7.17	1.56	1.23	0.53	0.67	1.32	2.02	6.40	7.26	3.61	3.97	1.59	1.51	2.86	51.57
1050.	5.00	4.88	7.17	1.56	1.23	0.53	0.67	1.32	2.02	6.40	7.26	3.61	3.97	1.59	1.51	2.86	51.57
1100.	5.00	4.88	7.17	1.56	1.23	0.41	0.63	1.32	2.02	6.40	7.26	3.61	3.97	1.32	1.20	2.86	50.83
1150.	5.00	4.69	6.80	1.56	1.23	0.41	0.63	1.32	2.02	5.89	6.85	3.61	3.97	1.32	1.20	2.86	49.36
1200.	5.00	4.69	6.80	1.56	1.23	0.41	0.63	1.32	2.02	5.89	6.85	3.61	3.97	1.32	1.20	2.86	49.36
1250.	4.38	4.69	6.80	1.37	1.11	0.41	0.63	1.20	1.90	5.89	6.85	3.39	3.82	1.32	1.20	2.55	47.51
1300.	4.38	4.69	6.80	1.37	1.11	0.41	0.63	1.20	1.90	5.89	6.85	3.39	3.82	1.32	1.20	2.55	47.51
1350.	4.38	4.69	6.80	1.37	1.11	0.41	0.63	1.20	1.90	5.89	6.85	3.39	3.82	1.32	1.20	2.55	47.51
1400.	3.94	4.69	6.80	1.20	1.08	0.41	0.63	1.13	1.76	5.89	6.85	3.13	3.53	1.32	1.20	2.09	45.66
1450.	3.94	4.69	6.80	1.20	1.08	0.41	0.63	1.13	1.76	5.89	6.85	3.13	3.53	1.32	1.20	2.09	45.66
1500.	3.61	4.69	6.80	1.03	1.03	0.41	0.63	0.96	1.64	5.89	6.85	2.81	3.27	1.32	1.20	1.66	43.81
1550.	3.61	4.69	6.80	1.03	1.03	0.41	0.63	0.96	1.64	5.89	6.85	2.81	3.27	1.32	1.20	1.66	43.81
1600.	3.61	4.47	6.37	1.03	1.03	0.41	0.63	0.96	1.64	5.43	6.49	2.81	3.27	1.32	1.20	1.66	42.34
1650.	3.61	3.90	5.94	1.03	1.03	0.36	0.60	0.96	1.64	4.88	5.89	2.81	3.27	1.01	0.94	1.6_	39.53
1700.	3.61	3.90	5.94	1.03	1.03	0.36	0.60	0.96	1.64	4.88	5.89	2.81	3.27	1.01	0.94	1.6_	39.53
1750.	3.15	3.90	5.94	0.91	0.94	0.36	0.60	0.84	1.49	4.88	5.89	2.38	2.79	1.01	0.94	1.27	37.29
1800.	3.15	3.90	5.94	0.91	0.94	0.36	0.60	0.84	1.49	4.88	5.89	2.38	2.79	1.01	0.94	1.27	37.29
1850.	3.15	3.65	5.05	0.91	0.94	0.36	0.60	0.84	1.49	4.28	5.31	2.38	2.79	1.01	0.94	1.27	34.98
1900.	3.15	3.65	5.05	0.91	0.94	0.36	0.60	0.84	1.49	4.28	5.31	2.38	2.79	1.01	0.94	1.27	34.98
1950.	3.15	3.65	5.05	0.91	0.94	0.36	0.60	0.84	1.49	4.28	5.31	2.38	2.79	1.01	0.94	1.27	34.98
2000.	3.15	3.65	5.05	0.91	0.94	0.36	0.60	0.84	1.49	4.28	5.31	2.38	2.79	1.01	0.94	1.27	34.98
2050.	3.15	3.13	4.47	0.91	0.94	0.31	0.48	0.84	1.49	3.70	4.83	2.38	2.79	0.84	0.70	1.27	32.24
2100.	2.64	3.13	4.47	0.87	0.84	0.31	0.48	0.79	1.35	3.70	4.83	2.21	2.45	0.84	0.70	0.91	30.54
2150.	2.64	3.13	4.47	0.87	0.84	0.31	0.48	0.79	1.35	3.70	4.83	2.21	2.45	0.84	0.70	0.91	30.54
2200.	2.64	3.13	4.47	0.87	0.84	0.31	0.48	0.79	1.35	3.70	4.83	2.21	2.45	0.84	0.70	0.91	30.54
2250.	2.64	3.13	4.47	0.87	0.84	0.31	0.48	0.79	1.35	3.70	4.83	2.21	2.45	0.84	0.70	0.91	30.54
2300.	2.64	3.13	4.47	0.87	0.84	0.31	0.48	0.79	1.35	3.70	4.83	2.21	2.45	0.84	0.70	0.91	30.54
2350.	2.64	3.13	4.47	0.87	0.84	0.31	0.48	0.79	1.35	3.70	4.83	2.21	2.45	0.84	0.70	0.91	30.54
2400.	2.64	3.13	4.47	0.87	0.84	0.31	0.48	0.79	1.35	3.70	4.83	2.21	2.45	0.84	0.70	0.91	30.54
2450.	2.64	2.81	3.75	0.87	0.84	0.31	0.48	0.79	1.35	3.01	4.16	2.21	2.45	0.84	0.70	0.91	28.13
2500.	2.64	2.81	3.75	0.87	0.84	0.31	0.48	0.79	1.35	3.01	4.16	2.21	2.45	0.84	0.70	0.91	28.13

PLUME LENGTH FREQUENCY TABLE

CIRCULAR MECHANICAL DRAFT COOLING TOWERS - CATAWBA NUCLEAR STATION

SEASON=WINTER

DISTANCE FROM TOWER (MI)	WIND FROM N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	SUM
	PLUME HEADED S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	SUM
2550.	2.64	2.81	3.75	0.87	0.84	0.31	0.48	0.79	1.35	3.01	4.16	2.21	2.45	0.84	0.70	0.91	28.13
2600.	2.64	2.81	3.75	0.87	0.84	0.31	0.48	0.79	1.35	3.01	4.16	2.21	2.45	0.84	0.70	0.91	28.13
2650.	2.64	2.81	3.75	0.87	0.84	0.31	0.48	0.79	1.35	3.01	4.16	2.21	2.45	0.84	0.70	0.91	28.13
2700.	2.64	2.81	3.75	0.87	0.84	0.31	0.48	0.79	1.35	3.01	4.16	2.21	2.45	0.84	0.70	0.91	28.13
2750.	2.64	2.81	3.75	0.87	0.84	0.31	0.48	0.79	1.35	3.01	4.16	2.21	2.45	0.84	0.70	0.91	28.13
2800.	2.64	2.81	3.75	0.87	0.84	0.31	0.48	0.79	1.35	3.01	4.16	2.21	2.45	0.84	0.70	0.91	28.13
2850.	2.64	2.81	3.75	0.87	0.84	0.31	0.48	0.79	1.35	3.01	4.16	2.21	2.45	0.84	0.70	0.91	28.13
2900.	2.31	2.81	3.75	0.70	0.70	0.31	0.48	0.60	1.20	3.01	4.16	1.90	2.09	0.84	0.70	0.75	26.30
2950.	2.31	2.81	3.75	0.70	0.70	0.31	0.48	0.60	1.20	3.01	4.16	1.90	2.09	0.84	0.70	0.75	26.30
3000.	2.31	2.81	3.75	0.70	0.70	0.31	0.48	0.60	1.20	3.01	4.16	1.90	2.09	0.84	0.70	0.75	26.30
3050.	2.31	2.81	3.75	0.70	0.70	0.31	0.48	0.60	1.20	3.01	4.16	1.90	2.09	0.84	0.70	0.75	26.30
3100.	2.31	2.81	3.75	0.70	0.70	0.31	0.48	0.60	1.20	3.01	4.16	1.90	2.09	0.84	0.70	0.75	26.30
3150.	2.31	2.38	3.20	0.70	0.70	0.31	0.48	0.60	1.20	2.57	3.58	1.90	2.09	0.84	0.70	0.75	24.31
3200.	2.31	2.38	3.20	0.70	0.70	0.31	0.48	0.60	1.20	2.57	3.58	1.90	2.09	0.84	0.70	0.75	24.31
3250.	2.31	2.38	3.20	0.70	0.70	0.31	0.48	0.60	1.20	2.57	3.58	1.90	2.09	0.84	0.70	0.75	24.31
3300.	2.31	2.38	3.20	0.70	0.70	0.31	0.48	0.60	1.20	2.57	3.58	1.90	2.09	0.84	0.70	0.75	24.31
3350.	2.31	2.38	3.20	0.70	0.70	0.31	0.48	0.60	1.20	2.57	3.58	1.90	2.09	0.84	0.70	0.75	24.31
3400.	2.31	2.38	3.20	0.70	0.70	0.31	0.48	0.60	1.20	2.57	3.58	1.90	2.09	0.84	0.70	0.75	24.31
3450.	2.31	2.38	3.20	0.70	0.70	0.31	0.48	0.60	1.20	2.57	3.58	1.90	2.09	0.84	0.70	0.75	24.31
3500.	2.31	2.38	3.20	0.70	0.70	0.31	0.48	0.60	1.20	2.57	3.58	1.90	2.09	0.84	0.70	0.75	24.31
3550.	2.31	2.38	3.20	0.70	0.70	0.31	0.48	0.60	1.20	2.57	3.58	1.90	2.09	0.84	0.70	0.75	24.31
3600.	2.31	2.38	3.20	0.70	0.70	0.31	0.48	0.60	1.20	2.57	3.58	1.90	2.09	0.84	0.70	0.75	24.31
3650.	2.31	2.38	3.20	0.70	0.70	0.31	0.48	0.60	1.20	2.57	3.58	1.90	2.09	0.84	0.70	0.75	24.31
3700.	2.16	2.38	3.20	0.58	0.46	0.31	0.48	0.55	0.96	2.57	3.58	1.39	1.64	0.84	0.70	0.60	22.41
3750.	2.16	2.38	3.20	0.58	0.46	0.31	0.48	0.55	0.96	2.57	3.58	1.39	1.64	0.84	0.70	0.60	22.41
3800.	2.16	2.38	3.20	0.58	0.46	0.31	0.48	0.55	0.96	2.57	3.58	1.39	1.64	0.84	0.70	0.60	22.41
3850.	2.16	2.38	3.20	0.58	0.46	0.31	0.48	0.55	0.96	2.57	3.58	1.39	1.64	0.84	0.70	0.60	22.41
3900.	2.16	2.04	2.72	0.58	0.46	0.31	0.48	0.55	0.96	1.97	2.57	1.39	1.64	0.84	0.70	0.60	19.98
3950.	2.16	2.04	2.72	0.58	0.46	0.31	0.48	0.55	0.96	1.97	2.57	1.39	1.64	0.84	0.70	0.60	19.98
4000.	2.16	2.04	2.72	0.58	0.46	0.31	0.48	0.55	0.96	1.97	2.57	1.39	1.64	0.84	0.70	0.60	19.98
4050.	2.16	2.04	2.72	0.58	0.46	0.31	0.48	0.55	0.96	1.97	2.57	1.39	1.64	0.84	0.70	0.60	19.98
4100.	2.16	2.04	2.72	0.58	0.46	0.31	0.48	0.55	0.96	1.97	2.57	1.39	1.64	0.84	0.70	0.60	19.98
4150.	2.16	2.04	2.72	0.58	0.46	0.31	0.48	0.55	0.96	1.97	2.57	1.39	1.64	0.84	0.70	0.60	19.98
4200.	2.16	2.04	2.72	0.58	0.46	0.31	0.48	0.55	0.96	1.97	2.57	1.39	1.64	0.84	0.70	0.60	19.98
4250.	2.16	2.04	2.72	0.58	0.46	0.31	0.48	0.55	0.96	1.97	2.57	1.39	1.64	0.84	0.70	0.60	19.98
4300.	2.16	2.04	2.72	0.58	0.46	0.31	0.48	0.55	0.96	1.97	2.57	1.39	1.64	0.84	0.70	0.60	19.98
4350.	2.16	2.04	2.72	0.58	0.46	0.31	0.48	0.55	0.96	1.97	2.57	1.39	1.64	0.84	0.70	0.60	19.98
4400.	2.16	2.04	2.72	0.58	0.46	0.31	0.48	0.55	0.96	1.97	2.57	1.39	1.64	0.84	0.70	0.60	19.98
4450.	2.16	2.04	2.72	0.58	0.46	0.31	0.48	0.55	0.96	1.97	2.57	1.39	1.64	0.84	0.70	0.60	19.98
4500.	2.16	2.04	2.72	0.58	0.46	0.31	0.48	0.55	0.96	1.97	2.57	1.39	1.64	0.84	0.70	0.60	19.98
4550.	2.16	2.04	2.72	0.58	0.46	0.31	0.48	0.55	0.96	1.97	2.57	1.39	1.64	0.84	0.70	0.60	19.98
4600.	1.83	2.04	2.72	0.46	0.43	0.31	0.48	0.38	0.55	1.97	2.57	1.11	1.32	0.84	0.70	0.43	18.15
4650.	1.83	2.04	2.72	0.46	0.43	0.31	0.48	0.38	0.55	1.97	2.57	1.11	1.32	0.84	0.70	0.43	18.15
4700.	1.83	2.04	2.72	0.46	0.43	0.31	0.48	0.38	0.55	1.97	2.57	1.11	1.32	0.84	0.70	0.43	18.15
4750.	1.83	2.04	2.72	0.46	0.43	0.31	0.48	0.38	0.55	1.97	2.57	1.11	1.32	0.84	0.70	0.43	18.15
4800.	1.83	2.04	2.72	0.46	0.43	0.31	0.48	0.38	0.55	1.97	2.57	1.11	1.32	0.84	0.70	0.43	18.15
4850.	1.83	2.04	2.72	0.46	0.43	0.31	0.48	0.38	0.55	1.97	2.57	1.11	1.32	0.84	0.70	0.43	18.15
4900.	1.83	2.04	2.72	0.46	0.43	0.31	0.48	0.38	0.55	1.97	2.57	1.11	1.32	0.84	0.70	0.43	18.15
4950.	1.83	2.04	2.72	0.46	0.43	0.31	0.48	0.38	0.55	1.97	2.57	1.11	1.32	0.84	0.70	0.43	18.15
5000.	1.83	2.04	2.72	0.46	0.43	0.31	0.48	0.38	0.55	1.97	2.57	1.11	1.32	0.84	0.70	0.43	18.15

********** PLUME HEIGHT FREQUENCY TABLE **********

CIRCULAR MECHANICAL DRAFT COOLING TOWERS - CATAWBA NUCLEAR STATION

SEASON=WINTER

HEIGHT FROM TOWER (M)	WIND FROM / PLUME HEADED																
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	SUM
	S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	SUM
10.	8.10	6.95	9.79	2.96	3.10	2.38	2.96	2.91	4.50	12.77	14.24	6.35	6.83	5.63	5.12	5.41	100.00
20.	8.10	6.95	9.79	2.96	3.10	2.38	2.96	2.91	4.50	12.77	14.24	6.35	6.83	5.63	5.12	5.41	100.00
30.	8.10	6.95	9.79	2.96	3.10	2.38	2.96	2.91	4.50	12.77	14.24	6.35	6.83	5.63	5.12	5.41	100.00
40.	8.10	6.95	9.79	2.96	3.10	2.38	2.96	2.91	4.50	12.77	14.24	6.35	6.82	5.63	5.12	5.41	100.00
50.	8.10	6.95	9.79	2.96	3.10	2.38	2.96	2.91	4.50	12.77	14.24	6.30	6.81	5.63	5.12	5.41	99.93
60.	8.10	6.95	9.79	2.96	3.10	2.38	2.96	2.91	4.50	12.75	13.92	6.30	6.81	5.63	5.12	5.41	99.59
70.	8.10	6.95	9.79	2.96	3.10	2.38	2.96	2.91	4.50	12.75	13.92	6.30	6.81	5.63	5.12	5.41	99.59
80.	8.10	6.95	9.79	2.96	3.10	2.28	2.91	2.89	4.47	12.75	13.92	6.28	6.81	5.63	5.12	5.41	99.37
90.	8.10	6.90	9.74	2.96	3.10	2.28	2.91	2.89	4.47	11.74	13.11	6.28	6.81	5.63	5.12	5.41	97.45
100.	7.53	6.90	9.72	2.55	2.60	2.12	2.79	2.45	3.70	11.64	13.08	5.58	6.20	5.60	5.10	5.05	92.62
110.	6.01	6.90	9.72	1.88	1.64	1.80	2.36	1.61	2.57	11.64	13.08	4.28	4.93	5.29	4.64	3.82	82.17
120.	6.01	6.90	9.69	1.88	1.64	0.94	1.15	1.61	2.57	11.62	13.06	4.28	4.93	2.89	2.67	3.82	75.65
130.	6.01	6.90	9.69	1.88	1.64	0.79	0.96	1.61	2.57	11.62	13.06	4.28	4.93	2.52	2.36	3.82	74.64
140.	6.01	6.59	9.35	1.88	1.64	0.79	0.96	1.61	2.57	10.90	12.17	4.28	4.93	2.52	2.36	3.82	72.38
150.	5.67	6.06	8.44	1.78	1.44	0.65	0.87	1.51	2.40	3.73	9.91	4.04	4.64	2.19	2.16	3.56	64.05
160.	5.31	5.94	8.22	1.66	1.37	0.65	0.87	1.42	2.09	8.49	9.55	3.90	4.26	2.19	2.16	3.25	61.31
170.	5.00	5.94	8.22	1.56	1.23	0.65	0.87	1.32	2.02	8.49	9.55	3.61	3.97	2.19	2.16	2.86	59.63
180.	5.00	5.94	8.22	1.56	1.23	0.63	0.75	1.32	2.02	8.49	9.55	3.61	3.97	1.92	1.76	2.86	58.81
190.	5.00	5.94	8.22	1.56	1.23	0.63	0.75	1.32	2.02	8.49	9.55	3.61	3.97	1.92	1.76	2.86	58.81
200.	5.00	5.94	8.22	1.56	1.23	0.63	0.75	1.32	2.02	8.49	9.55	3.61	3.97	1.92	1.76	2.86	58.81
210.	5.00	5.79	8.01	1.56	1.23	0.63	0.75	1.32	2.02	7.93	8.85	3.61	3.97	1.92	1.76	2.86	57.20
220.	5.00	5.79	8.01	1.56	1.23	0.63	0.75	1.32	2.02	7.93	8.85	3.61	3.97	1.92	1.76	2.86	57.20
230.	5.00	5.79	8.01	1.56	1.23	0.63	0.75	1.32	2.02	7.93	8.85	3.61	3.97	1.92	1.76	2.86	57.20
240.	5.00	5.79	8.01	1.56	1.23	0.63	0.75	1.32	2.02	7.93	8.85	3.61	3.97	1.92	1.76	2.86	57.20
250.	5.00	5.79	8.01	1.56	1.23	0.53	0.67	1.32	2.02	7.93	8.85	3.61	3.97	1.59	1.51	2.86	56.45
260.	5.00	5.60	7.84	1.56	1.23	0.53	0.67	1.32	2.02	7.81	8.58	3.61	3.97	1.59	1.51	2.86	55.71
270.	5.00	5.46	7.77	1.56	1.23	0.53	0.67	1.32	2.02	7.57	8.20	3.61	3.97	1.59	1.51	2.86	54.87
280.	5.00	5.46	7.77	1.56	1.23	0.53	0.67	1.32	2.02	7.57	8.20	3.61	3.97	1.59	1.51	2.86	54.87
290.	5.00	5.46	7.77	1.56	1.23	0.43	0.67	1.32	2.02	7.57	8.20	3.61	3.97	1.54	1.51	2.86	54.72
300.	5.00	5.17	7.41	1.56	1.23	0.43	0.67	1.32	2.02	7.00	7.69	3.61	3.97	1.54	1.51	2.86	52.99
310.	4.83	5.17	7.41	1.51	1.18	0.43	0.67	1.27	1.85	7.00	7.69	3.44	3.90	1.54	1.51	2.86	52.27
320.	4.83	5.17	7.41	1.51	1.18	0.43	0.67	1.27	1.85	7.00	7.69	3.44	3.90	1.54	1.51	2.86	52.27
330.	4.83	5.17	7.41	1.51	1.18	0.43	0.67	1.27	1.85	7.00	7.69	3.44	3.90	1.54	1.51	2.86	52.27
340.	4.83	5.17	7.41	1.51	1.18	0.43	0.67	1.27	1.85	7.00	7.69	3.44	3.90	1.54	1.51	2.86	52.27
350.	4.83	5.17	7.41	1.51	1.18	0.43	0.67	1.27	1.85	7.00	7.69	3.44	3.90	1.54	1.51	2.86	52.27
360.	4.83	5.17	7.41	1.51	1.18	0.43	0.67	1.27	1.85	7.00	7.69	3.44	3.90	1.54	1.51	2.86	52.27
370.	4.83	5.17	7.41	1.51	1.18	0.43	0.67	1.27	1.85	7.00	7.69	3.44	3.90	1.54	1.51	2.86	52.27
380.	4.83	5.17	7.41	1.51	1.18	0.43	0.67	1.27	1.85	7.00	7.69	3.44	3.90	1.54	1.51	2.86	52.27
390.	4.83	5.17	7.41	1.51	1.18	0.43	0.67	1.27	1.85	7.00	7.69	3.44	3.90	1.54	1.51	2.86	52.27
400.	4.83	5.17	7.41	1.51	1.18	0.43	0.67	1.27	1.85	7.00	7.69	3.44	3.90	1.54	1.51	2.86	52.27
410.	4.83	5.17	7.41	1.51	1.18	0.43	0.67	1.27	1.85	7.00	7.69	3.44	3.90	1.54	1.51	2.86	52.27
420.	4.83	5.17	7.41	1.51	1.18	0.43	0.67	1.27	1.85	7.00	7.69	3.44	3.90	1.54	1.51	2.86	52.27
430.	4.83	5.17	7.41	1.51	1.18	0.43	0.67	1.27	1.85	7.00	7.69	3.44	3.90	1.54	1.51	2.86	52.27
440.	4.83	5.17	7.41	1.51	1.18	0.43	0.67	1.27	1.85	7.00	7.69	3.44	3.90	1.54	1.51	2.86	52.27
450.	4.83	5.17	7.41	1.51	1.18	0.43	0.67	1.27	1.85	7.00	7.69	3.44	3.90	1.54	1.51	2.86	52.27
460.	4.83	5.17	7.38	1.51	1.18	0.43	0.67	1.25	1.85	7.00	7.65	3.44	3.90	1.54	1.51	2.86	52.18
470.	4.83	4.40	6.59	1.51	1.18	0.43	0.67	1.25	1.85	5.94	6.64	3.44	3.90	1.51	1.51	2.86	48.52
480.	4.83	2.86	4.45	1.51	1.18	0.43	0.67	1.25	1.85	3.49	4.42	3.44	3.90	1.51	1.51	2.86	40.18
490.	4.83	2.86	4.45	1.51	1.18	0.22	0.48	1.25	1.85	3.49	4.42	3.44	3.90	0.77	0.70	2.86	38.21
500.	4.50	2.43	3.90	1.35	1.13	0.22	0.48	1.08	1.73	3.05	3.85	3.13	3.63	0.77	0.70	2.43	34.36

********** PLUME HEIGHT FREQUENCY TABLE **********

CIRCULAR MECHANICAL DRAFT COOLING TOWERS - CATAWBA NUCLEAR STATION

SEASON=WINTER

HEIGHT FROM TOWER (M)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	SUM
	WIND FROM																
	PLUME HEADED																
	S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	SUM
510.	2.48	2.09	3.41	0.82	0.79	0.22	0.48	0.72	1.18	2.45	2.84	2.04	2.38	0.77	0.70	0.91	24.28
520.	2.14	2.09	3.41	0.65	0.65	0.22	0.48	0.53	1.03	2.45	2.84	1.73	2.02	0.77	0.70	0.75	22.46
530.	2.14	2.09	3.41	0.65	0.65	0.22	0.48	0.53	1.03	2.45	2.84	1.73	2.02	0.77	0.70	0.75	22.46
540.	2.00	1.66	2.98	0.53	0.41	0.22	0.48	0.48	0.79	2.04	2.09	1.23	1.56	0.77	0.70	0.60	18.54
550.	2.00	1.42	2.09	0.53	0.41	0.22	0.48	0.48	0.79	1.44	1.51	1.23	1.56	0.77	0.70	0.60	16.23
560.	2.00	1.42	2.09	0.53	0.41	0.22	0.48	0.48	0.79	1.44	1.51	1.23	1.56	0.77	0.70	0.60	16.23
570.	2.00	1.42	2.09	0.53	0.41	0.22	0.48	0.48	0.79	1.44	1.51	1.23	1.56	0.77	0.70	0.60	16.23
580.	1.66	0.00	0.00	0.41	0.38	0.14	0.43	0.31	0.38	0.00	0.00	0.94	1.25	0.43	0.43	0.43	7.21
590.	1.66	0.00	0.00	0.41	0.38	0.14	0.43	0.31	0.38	0.00	0.00	0.94	1.25	0.43	0.43	0.43	7.21
600.	1.66	0.00	0.00	0.41	0.38	0.14	0.43	0.31	0.38	0.00	0.00	0.94	1.25	0.43	0.43	0.43	7.21
610.	1.66	0.00	0.00	0.41	0.38	0.14	0.43	0.31	0.38	0.00	0.00	0.94	1.25	0.43	0.43	0.43	7.21
620.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
630.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
640.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
650.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
660.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
670.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
680.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
690.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
700.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
710.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
720.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
730.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
740.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
750.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
760.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
770.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
780.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
790.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
800.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
810.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
820.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
830.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
840.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
850.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
860.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
870.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
880.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
890.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
900.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
910.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
920.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
930.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
940.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
950	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
960.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
970.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
980.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
990.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1000.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

********** PLUME RADIUS FREQUENCY TABLE **********

CIRCULAR MECHANICAL DRAFT COOLING TOWERS - CATAWBA NUCLEAR STATION

SEASON=WINTER

MAXIMUM FROM TOWER (MI)	WIND FROM ********** PLUME HEADED **********																
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	SUM
	S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	SUM
5.	8.10	6.95	9.79	2.96	3.10	2.38	2.96	2.91	4.50	12.77	14.24	6.35	6.83	5.63	5.12	5.41	100.00
10.	8.10	6.95	9.79	2.96	3.10	2.38	2.96	2.91	4.50	12.77	14.24	6.35	6.83	5.63	5.12	5.41	100.00
15.	8.10	6.95	9.79	2.96	3.10	2.38	2.96	2.91	4.50	12.77	14.24	6.35	6.83	5.63	5.12	5.41	100.00
20.	8.10	6.95	9.79	2.96	3.10	2.38	2.96	2.91	4.50	12.77	14.24	6.35	6.83	5.63	5.12	5.41	100.00
25.	8.10	6.95	9.79	2.96	3.10	2.28	2.91	2.89	4.47	12.77	14.24	6.28	6.81	5.63	5.12	5.41	99.71
30.	8.10	6.93	9.79	2.79	2.93	2.12	2.79	2.84	4.31	12.34	13.66	6.28	6.57	5.60	5.10	5.36	97.50
35.	8.10	6.90	9.72	2.79	2.93	2.12	2.79	2.84	4.31	11.64	13.08	6.28	6.57	5.60	5.10	5.36	96.13
40.	7.89	6.90	9.72	2.67	2.69	1.95	2.57	2.52	4.06	11.64	13.08	6.04	6.40	5.51	5.00	5.24	93.88
45.	7.60	6.90	9.72	2.43	2.38	1.80	2.28	2.19	3.70	11.64	13.08	5.60	5.99	5.10	4.76	5.10	90.27
50.	6.52	6.90	9.72	2.07	1.85	1.51	1.78	1.78	2.84	11.64	13.08	4.62	5.34	4.33	4.18	4.38	82.53
55.	6.08	6.90	9.72	1.97	1.80	1.37	1.64	1.71	2.67	11.64	13.08	4.42	5.19	4.11	4.02	4.06	80.39
60.	5.67	6.88	9.55	1.78	1.44	1.37	1.64	1.51	2.40	11.35	12.65	4.04	4.64	4.11	4.02	3.56	76.61
65.	5.67	6.73	9.28	1.78	1.44	1.37	1.64	1.51	2.40	10.87	12.14	4.04	4.64	4.11	4.02	3.56	75.21
70.	5.00	6.66	9.16	1.56	1.23	1.37	1.64	1.32	2.02	10.41	11.78	3.61	3.97	4.11	4.02	2.86	70.71
75.	5.00	6.47	8.87	1.56	1.23	1.25	1.44	1.32	2.02	9.69	11.11	3.61	3.97	3.51	3.37	2.86	67.27
80.	5.00	5.94	8.22	1.56	1.23	1.25	1.44	1.32	2.02	8.49	9.55	3.61	3.97	3.51	3.37	2.86	63.33
85.	5.00	5.79	8.01	1.56	1.23	0.77	0.89	1.32	2.02	7.93	8.85	3.61	3.97	2.26	2.40	2.86	58.47
90.	5.00	5.36	7.57	1.56	1.23	0.77	0.89	1.32	2.02	7.12	7.96	3.61	3.97	2.26	2.40	2.86	55.90
95.	5.00	5.10	7.36	1.56	1.23	0.77	0.89	1.32	2.02	6.78	7.65	3.61	3.97	2.26	2.40	2.86	54.77
100.	5.00	5.10	7.36	1.56	1.23	0.65	0.84	1.32	2.02	6.78	7.65	3.61	3.97	2.00	2.09	2.86	54.03
105.	5.00	4.88	7.17	1.56	1.23	0.65	0.84	1.32	2.02	6.40	7.26	3.61	3.97	2.00	2.09	2.86	52.85
110.	5.00	4.69	6.80	1.56	1.23	0.65	0.84	1.32	2.02	5.89	6.85	3.61	3.97	2.00	2.09	2.86	51.38
115.	5.00	4.69	6.80	1.56	1.23	0.55	0.82	1.32	2.02	5.89	6.85	3.61	3.97	1.68	1.51	2.86	50.37
120.	4.83	4.69	6.80	1.51	1.18	0.55	0.82	1.27	1.85	5.89	6.85	3.44	3.90	1.68	1.51	2.86	49.65
125.	4.83	4.69	6.80	1.51	1.18	0.55	0.82	1.27	1.85	5.89	6.85	3.44	3.90	1.68	1.51	2.86	49.65
130.	4.83	4.69	6.80	1.51	1.18	0.46	0.82	1.27	1.85	5.89	6.85	3.44	3.90	1.64	1.51	2.86	49.51
135.	4.21	4.50	6.64	1.32	1.06	0.46	0.82	1.15	1.73	5.77	6.59	3.22	3.75	1.64	1.51	2.55	46.91
140.	4.21	4.50	6.64	1.32	1.06	0.46	0.82	1.15	1.73	5.77	6.59	3.22	3.75	1.64	1.51	2.55	46.91
145.	4.21	4.50	6.64	1.32	1.06	0.46	0.82	1.15	1.73	5.77	6.59	3.22	3.75	1.64	1.51	2.55	46.91
150.	4.21	4.50	6.64	1.32	1.06	0.46	0.82	1.15	1.73	5.77	6.59	3.22	3.75	1.64	1.51	2.55	46.91
155.	3.77	4.50	6.64	1.15	1.03	0.36	0.75	1.08	1.59	5.77	6.59	2.96	3.46	1.35	1.37	2.09	44.46
160.	3.77	4.50	6.64	1.15	1.03	0.36	0.75	1.08	1.59	5.77	6.59	2.96	3.46	1.35	1.37	2.09	44.46
165.	3.44	4.50	6.64	0.99	0.99	0.36	0.75	0.91	1.47	5.77	6.59	2.64	3.20	1.35	1.37	1.66	42.61
170.	3.44	4.28	6.20	0.99	0.99	0.36	0.75	0.91	1.47	5.31	6.23	2.64	3.20	1.35	1.37	1.66	41.14
175.	3.44	4.28	6.20	0.99	0.99	0.31	0.63	0.91	1.47	5.31	6.23	2.64	3.20	1.27	1.20	1.66	40.73
180.	3.44	3.46	4.88	0.99	0.99	0.26	0.60	0.91	1.47	4.16	5.05	2.64	3.20	0.96	0.94	1.66	35.61
185.	3.44	3.46	4.88	0.99	0.99	0.26	0.60	0.91	1.47	4.16	5.05	2.64	3.20	0.96	0.94	1.66	35.61
190.	3.44	3.46	4.88	0.99	0.99	0.26	0.60	0.91	1.47	4.16	5.05	2.64	3.20	0.96	0.94	1.66	35.61
195.	3.44	3.46	4.88	0.99	0.99	0.26	0.60	0.91	1.47	4.16	5.05	2.64	3.20	0.96	0.94	1.66	35.61
200.	2.98	3.46	4.88	0.87	0.89	0.26	0.60	0.79	1.32	4.16	5.05	2.21	2.72	0.96	0.94	1.27	33.37
205.	2.98	3.46	4.88	0.87	0.89	0.26	0.60	0.79	1.32	4.16	5.05	2.21	2.72	0.96	0.94	1.27	33.37
210.	2.98	2.93	4.30	0.87	0.89	0.22	0.48	0.79	1.32	3.58	4.57	2.21	2.72	0.79	0.70	1.27	30.63
215.	2.98	2.93	4.30	0.87	0.89	0.22	0.48	0.79	1.32	3.58	4.57	2.21	2.72	0.79	0.70	1.27	30.63
220.	2.98	2.93	4.30	0.87	0.89	0.22	0.48	0.79	1.32	3.58	4.57	2.21	2.72	0.79	0.70	1.27	30.63
225.	2.98	2.93	4.30	0.87	0.89	0.22	0.48	0.79	1.32	3.58	4.57	2.21	2.72	0.79	0.70	1.27	30.63
230.	2.48	2.93	4.30	0.82	0.79	0.22	0.48	0.75	1.18	3.58	4.57	2.04	2.38	0.79	0.70	0.91	28.93
235.	2.48	2.93	4.30	0.82	0.79	0.22	0.48	0.75	1.18	3.58	4.57	2.04	2.38	0.79	0.70	0.91	28.93
240.	2.48	2.62	3.58	0.82	0.79	0.22	0.48	0.75	1.18	2.89	3.90	2.04	2.38	0.79	0.70	0.91	26.52
245.	2.48	2.62	3.58	0.82	0.79	0.22	0.48	0.75	1.18	2.89	3.90	2.04	2.38	0.79	0.70	0.91	26.52
250.	2.48	2.62	3.58	0.82	0.79	0.22	0.48	0.75	1.18	2.89	3.90	2.04	2.38	0.79	0.70	0.91	26.52

**********PLUME RADIUS FREQUENCY TABLE**********

CIRCULAR MECHANICAL DRAFT COOLING TOWERS - CATAWBA NUCLEAR STATION

SEASON=WINTER

MAXIMUM FROM TOWER (M)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	SUM
	S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	SUM
	********** WIND FROM **********							********** PLUME HEADED **********									
255.	2.48	2.62	3.58	0.82	0.79	0.22	0.48	0.75	1.18	2.89	3.90	2.04	2.38	0.79	0.70	0.91	26.52
260.	2.48	2.62	3.58	0.82	0.79	0.22	0.48	0.75	1.18	2.89	3.90	2.04	2.38	0.79	0.70	0.91	26.52
265.	2.48	2.62	3.58	0.82	0.79	0.22	0.48	0.75	1.18	2.89	3.90	2.04	2.38	0.79	0.70	0.91	26.52
270.	2.48	2.62	3.58	0.82	0.79	0.22	0.48	0.75	1.18	2.89	3.90	2.04	2.38	0.79	0.70	0.91	26.52
275.	2.14	2.62	3.58	0.65	0.65	0.22	0.48	0.55	1.03	2.89	3.90	1.73	2.02	0.79	0.70	0.75	24.69
280.	2.14	2.19	3.03	0.65	0.65	0.22	0.48	0.55	1.03	2.45	3.32	1.73	2.02	0.79	0.70	0.75	22.70
285.	2.14	2.19	3.03	0.65	0.65	0.22	0.48	0.55	1.03	2.45	3.32	1.73	2.02	0.79	0.70	0.75	22.70
290.	2.14	2.19	3.03	0.65	0.65	0.22	0.48	0.55	1.03	2.45	3.32	1.73	2.02	0.79	0.70	0.75	22.70
295.	2.14	2.19	3.03	0.65	0.65	0.22	0.48	0.55	1.03	2.45	3.32	1.73	2.02	0.79	0.70	0.75	22.70
300.	2.14	2.19	3.03	0.65	0.65	0.22	0.48	0.55	1.03	2.45	3.32	1.73	2.02	0.79	0.70	0.75	22.70
305.	2.14	2.19	3.03	0.65	0.65	0.22	0.48	0.55	1.03	2.45	3.32	1.73	2.02	0.79	0.70	0.75	22.70
310.	2.14	2.19	3.03	0.65	0.65	0.22	0.48	0.55	1.03	2.45	3.32	1.73	2.02	0.79	0.70	0.75	22.70
315.	2.00	2.19	3.03	0.53	0.41	0.22	0.48	0.50	0.79	2.45	3.32	1.23	1.56	0.79	0.70	0.60	20.80
320.	2.00	2.19	3.03	0.53	0.41	0.22	0.48	0.50	0.79	2.45	3.32	1.23	1.56	0.79	0.70	0.60	20.80
325.	2.00	1.85	2.55	0.53	0.41	0.22	0.48	0.50	0.79	1.85	2.31	1.23	1.56	0.79	0.70	0.60	18.37
330.	2.00	1.85	2.55	0.53	0.41	0.22	0.48	0.50	0.79	1.85	2.31	1.23	1.56	0.79	0.70	0.60	18.37
335.	2.00	1.85	2.55	0.53	0.41	0.22	0.48	0.50	0.79	1.85	2.31	1.23	1.56	0.79	0.70	0.60	18.37
340.	2.00	1.85	2.55	0.53	0.41	0.22	0.48	0.50	0.79	1.85	2.31	1.23	1.56	0.79	0.70	0.60	18.37
345.	2.00	1.85	2.55	0.53	0.41	0.22	0.48	0.50	0.79	1.85	2.31	1.23	1.56	0.79	0.70	0.60	18.37
350.	2.00	1.85	2.55	0.53	0.41	0.22	0.48	0.50	0.79	1.85	2.31	1.23	1.56	0.79	0.70	0.60	18.37
355.	2.00	1.85	2.55	0.53	0.41	0.22	0.48	0.50	0.79	1.85	2.31	1.23	1.56	0.79	0.70	0.60	18.37
360.	2.00	1.85	2.55	0.53	0.41	0.22	0.48	0.50	0.79	1.85	2.31	1.23	1.56	0.79	0.70	0.60	18.37
365.	2.00	1.85	2.55	0.53	0.41	0.22	0.48	0.50	0.79	1.85	2.31	1.23	1.56	0.79	0.70	0.60	18.37
370.	2.00	1.85	2.55	0.53	0.41	0.22	0.48	0.50	0.79	1.85	2.31	1.23	1.56	0.79	0.70	0.60	18.37
375.	2.00	1.85	2.55	0.53	0.41	0.22	0.48	0.50	0.79	1.85	2.31	1.23	1.56	0.79	0.70	0.60	18.37
380.	2.00	1.85	2.55	0.53	0.41	0.22	0.48	0.50	0.79	1.85	2.31	1.23	1.56	0.79	0.70	0.60	18.37
385.	2.00	1.85	2.55	0.53	0.41	0.22	0.48	0.50	0.79	1.85	2.31	1.23	1.56	0.79	0.70	0.60	18.37
390.	2.00	1.85	2.55	0.53	0.41	0.22	0.48	0.50	0.79	1.85	2.31	1.23	1.56	0.79	0.70	0.60	18.37
395.	2.00	1.85	2.55	0.53	0.41	0.22	0.48	0.50	0.79	1.85	2.31	1.23	1.56	0.79	0.70	0.60	18.37
400.	2.00	1.85	2.55	0.53	0.41	0.22	0.48	0.50	0.79	1.85	2.31	1.23	1.56	0.79	0.70	0.60	18.37
405.	2.00	1.85	2.55	0.53	0.41	0.22	0.48	0.50	0.79	1.85	2.31	1.23	1.56	0.79	0.70	0.60	18.37
410.	1.66	1.85	2.55	0.41	0.38	0.22	0.48	0.34	0.38	1.85	2.31	0.94	1.25	0.79	0.70	0.43	16.54
415.	1.66	1.85	2.55	0.41	0.38	0.14	0.43	0.34	0.38	1.85	2.31	0.94	1.25	0.46	0.43	0.43	15.82
420.	1.66	1.85	2.55	0.41	0.38	0.14	0.43	0.34	0.38	1.85	2.31	0.94	1.25	0.46	0.43	0.43	15.82
425.	1.66	1.85	2.55	0.41	0.38	0.14	0.43	0.34	0.38	1.85	2.31	0.94	1.25	0.46	0.43	0.43	15.82
430.	1.66	1.42	2.12	0.41	0.38	0.14	0.43	0.34	0.38	1.44	1.56	0.94	1.25	0.46	0.43	0.43	13.80
435.	1.66	1.42	2.12	0.41	0.38	0.14	0.43	0.34	0.38	1.44	1.56	0.94	1.25	0.46	0.43	0.43	13.80
440.	1.66	1.42	2.12	0.41	0.38	0.14	0.43	0.34	0.38	1.44	1.56	0.94	1.25	0.46	0.43	0.43	13.80
445.	1.66	1.42	2.12	0.41	0.38	0.14	0.43	0.34	0.38	1.44	1.56	0.94	1.25	0.46	0.43	0.43	13.80
450.	1.66	1.42	2.12	0.41	0.38	0.14	0.43	0.34	0.38	1.44	1.56	0.94	1.25	0.46	0.43	0.43	13.80
455.	1.66	1.42	2.12	0.41	0.38	0.14	0.43	0.34	0.38	1.44	1.56	0.94	1.25	0.46	0.43	0.43	13.80
460.	1.66	1.42	2.12	0.41	0.38	0.14	0.43	0.34	0.38	1.44	1.56	0.94	1.25	0.46	0.43	0.43	13.80
465.	1.66	1.42	2.12	0.41	0.38	0.14	0.43	0.34	0.38	1.44	1.56	0.94	1.25	0.46	0.43	0.43	13.80
470.	1.66	1.42	2.12	0.41	0.38	0.14	0.43	0.34	0.38	1.44	1.56	0.94	1.25	0.46	0.43	0.43	13.80
475.	1.66	1.42	2.12	0.41	0.38	0.14	0.43	0.34	0.38	1.44	1.56	0.94	1.25	0.46	0.43	0.43	13.80
480.	1.66	1.42	2.12	0.41	0.38	0.14	0.43	0.34	0.38	1.44	1.56	0.94	1.25	0.43	0.43	0.43	13.78
485.	1.66	1.42	2.12	0.41	0.38	0.14	0.43	0.34	0.38	1.44	1.56	0.94	1.25	0.43	0.43	0.43	13.78
490.	1.66	1.42	2.12	0.41	0.38	0.14	0.43	0.34	0.38	1.44	1.56	0.94	1.25	0.43	0.43	0.43	13.78
495.	1.66	1.42	2.12	0.41	0.38	0.14	0.43	0.31	0.38	1.44	1.56	0.94	1.25	0.43	0.43	0.43	13.75
500.	1.66	1.42	2.09	0.41	0.38	0.14	0.43	0.31	0.38	1.44	1.51	0.94	1.25	0.43	0.43	0.43	13.68

HOURS OF PLUME FOGGING TABLE

CIRCULAR MECHANICAL DRAFT COOLING TOWERS - CATAWBA NUCLEAR STATION

SEASON=WINTER

DISTANCE FROM TOWER (M)	WIND FROM PLUME HEADED																
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	AVG
	S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	AVG
100.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
300.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
400.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
500.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
600.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
700.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
800.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
900.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1000.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1100.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1200.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1300.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1400.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1500.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1600.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

HOURS OF RIME ICING TABLE

CIRCULAR MECHANICAL DRAFT COOLING TOWERS - CATAWBA NUCLEAR STATION

SEASON=WINTER

DISTANCE FROM TOWER (M)	WIND FROM PLUME HEADED																
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	AVG
	S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	AVG
100.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
300.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
400.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
500.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
600.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
700.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
800.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
900.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1000.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1100.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1200.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1300.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1400.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1500.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1600.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

********** FREQUENCY PERCENTAGE BY CATEGORY AND WIND DIRECTION **********

CIRCULAR MECHANICAL DRAFT COOLING TOWERS - CATAWBA NUCLEAR STATION

SEASON=ANNUAL

CATEGORY NUMBER	WIND FROM ********** PLUME HEADED **********																
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
	S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	SUM
11	0.41	0.77	1.00	0.51	0.51	0.52	0.84	0.90	0.67	1.85	2.40	0.96	0.80	0.39	0.31	0.26	13.11
12	0.64	0.75	0.97	0.46	0.57	0.33	0.53	0.59	0.57	1.73	1.28	0.55	0.48	0.29	0.33	0.36	10.43
13	0.02	0.08	0.03	0.05	0.08	0.07	0.10	0.15	0.17	0.41	0.24	0.14	0.19	0.08	0.12	0.06	2.00
14	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.07	0.03	0.02	0.01	0.00	0.00	0.13
15	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.03	0.18	0.09	0.01	0.01	0.00	0.01	0.34
16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.01
17	0.02	0.10	0.10	0.05	0.06	0.03	0.05	0.03	0.07	0.12	0.18	0.05	0.04	0.02	0.03	0.02	0.95
18	0.15	0.18	0.25	0.12	0.09	0.09	0.09	0.14	0.09	0.35	0.19	0.11	0.06	0.05	0.06	0.06	2.08
19	0.04	0.03	0.03	0.02	0.04	0.04	0.02	0.05	0.05	0.06	0.07	0.03	0.07	0.05	0.02	0.07	0.68
20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.01
21	0.19	0.18	0.25	0.1[illegible]	0.17	0.12	0.11	0.14	0.16	0.39	0.42	0.10	0.07	0.02	0.09	0.09	2.62
22	0.20	0.18	0.34	0.14	0.10	0.06	0.12	0.14	0.22	0.48	0.35	0.14	0.09	0.17	0.14	0.14	3.01
23	0.12	0.17	0.21	0.12	0.14	0.07	0.12	0.13	0.14	0.47	0.39	0.11	0.20	0.16	0.12	0.15	2.83
24	0.16	0.12	0.27	0.14	0.07	0.03	0.10	0.18	0.14	0.43	0.30	0.18	0.11	0.08	0.12	0.06	2.51
25	0.20	0.19	0.26	0.08	0.14	0.05	0.10	0.16	0.21	0.41	0.39	0.15	0.11	0.10	0.11	0.14	2.80
26	0.19	0.21	0.43	0.20	0.13	0.08	0.14	0.14	0.20	0.61	0.48	0.19	0.18	0.09	0.13	0.16	3.55
27	0.19	0.16	0.19	0.09	0.07	0.07	0.10	0.10	0.16	0.33	0.29	0.18	0.10	0.09	0.11	0.06	2.30
28	0.27	0.28	0.33	0.14	0.12	0.09	0.09	0.14	0.16	0.50	0.35	0.13	0.08	0.15	0.11	0.16	3.10
29	0.24	0.20	0.35	0.12	0.18	0.10	0.07	0.12	0.14	0.46	0.45	0.15	0.18	0.16	0.14	0.12	3.17
30	0.16	0.14	0.20	0.10	0.10	0.06	0.07	0.11	0.08	0.29	0.26	0.12	0.14	0.12	0.14	0.12	2.20
31	0.37	0.20	0.44	0.21	0.14	0.09	0.11	0.12	0.18	0.56	0.41	0.16	0.12	0.10	0.22	0.18	3.61
32	0.25	0.22	0.23	0.09	0.10	0.05	0.10	0.10	0.10	0.33	0.24	0.18	0.14	0.09	0.12	0.13	2.47
33	0.24	0.15	0.23	0.10	0.10	0.08	0.10	0.12	0.17	0.37	0.27	0.11	0.20	0.14	0.11	0.14	2.62
34	0.18	0.22	0.34	0.09	0.12	0.06	0.10	0.16	0.16	0.38	0.28	0.14	0.16	0.13	0.14	0.16	2.82
35	0.27	0.21	0.44	0.16	0.07	0.10	0.12	0.16	0.14	0.56	0.38	0.18	0.11	0.12	0.12	0.11	3.27
36	0.24	0.16	0.29	0.15	0.07	0.07	0.12	0.12	0.12	0.37	0.24	0.16	0.16	0.15	0.12	0.18	2.71
37	0.24	0.26	0.32	0.09	0.05	0.05	0.07	0.16	0.12	0.37	0.35	0.22	0.12	0.15	0.10	0.17	2.83
38	0.22	0.24	0.37	0.07	0.09	0.06	0.07	0.13	0.14	0.33	0.34	0.22	0.18	0.10	0.10	0.12	2.79
39	0.25	0.19	0.45	0.07	0.09	0.10	0.07	0.04	0.18	0.42	0.34	0.12	0.17	0.14	0.18	0.16	2.97
40	0.24	0.22	0.39	0.07	0.10	0.10	0.09	0.14	0.09	0.30	0.41	0.20	0.18	0.10	0.06	0.09	2.77
41	0.14	0.22	0.40	0.09	0.16	0.07	0.10	0.09	0.14	0.38	0.47	0.25	0.20	0.05	0.07	0.07	2.88
42	0.23	0.35	0.38	0.09	0.10	0.07	0.05	0.16	0.22	0.27	0.37	0.15	0.12	0.10	0.12	0.07	2.87
43	0.57	0.58	1.17	0.22	0.29	0.15	0.30	0.18	0.29	0.79	0.71	0.41	0.43	0.15	0.15	0.19	6.58
44	0.09	0.09	0.10	0.04	0.03	0.03	0.01	0.05	0.09	0.09	0.16	0.06	0.03	0.04	0.01	0.00	0.93
45	0.00	0.01	0.01	0.00	0.01	0.00	0.00	0.02	0.00	0.00	0.01	0.00	0.00	0.01	0.01	0.00	0.07
TOTALS	6.74	7.05	10.78	3.99	4.11	2.85	4.07	4.98	5.38	14.43	13.25	5.99	5.24	3.61	3.71	3.81	100.00

STABILITY CLASS BY WIND DIRECTION

CIRCULAR MECHANICAL DRAFT COOLING TOWERS - CATAWBA NUCLEAR STATION
SEASON=ANNUAL

STABILITY CLASS	WIND FROM PLUME HEADED																
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
	S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	STAG.
1	0.05	0.11	0.09	0.11	0.10	0.17	0.22	0.21	0.13	0.12	0.19	0.16	0.17	0.14	0.10	0.08	0.50
2	0.02	0.04	0.05	0.07	0.06	0.04	0.04	0.03	0.03	0.04	0.06	0.04	0.04	0.06	0.05	0.04	0.00
3	0.02	0.03	0.04	0.04	0.05	0.03	0.03	0.03	0.02	0.03	0.04	0.03	0.02	0.03	0.04	0.03	0.00
4	0.31	0.34	0.43	0.39	0.35	0.29	0.28	0.24	0.24	0.30	0.26	0.22	0.20	0.18	0.23	0.29	0.00
5	0.35	0.26	0.27	0.26	0.30	0.27	0.23	0.26	0.30	0.33	0.28	0.28	0.28	0.27	0.33	0.36	0.50
6	0.11	0.12	0.06	0.07	0.07	0.07	0.08	0.09	0.10	0.08	0.08	0.11	0.12	0.16	0.10	0.09	0.00
7	0.13	0.10	0.06	0.07	0.07	0.14	0.13	0.15	0.19	0.10	0.10	0.16	0.17	0.16	0.16	0.12	0.00

WIND SPEED DISTRIBUTION BY DIRECTION AT REFERENCE HEIGHT OF 200. METERS

CIRCULAR MECHANICAL DRAFT COOLING TOWERS - CATAWBA NUCLEAR STATION
SEASON=ANNUAL

WIND RANGE	WIND FROM PLUME HEADED																
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
	S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	STAG.
1	0.28	0.28	0.20	0.32	0.31	0.34	0.39	0.35	0.37	0.22	0.16	0.17	0.21	0.19	0.25	0.25	1.00
2	0.56	0.60	0.59	0.56	0.55	0.56	0.50	0.53	0.53	0.63	0.53	0.49	0.47	0.43	0.40	0.49	0.00
3	0.16	0.12	0.21	0.12	0.14	0.10	0.10	0.12	0.10	0.15	0.31	0.34	0.32	0.37	0.36	0.26	0.00

COMBINED FACTORS BY WIND DIRECTION

CIRCULAR MECHANICAL DRAFT COOLING TOWERS - CATAWBA NUCLEAR STATION
SEASON=ANNUAL

COMBINED CLASS*	WIND FROM PLUME HEADED																
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
	S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	STAG.
1	0.03	0.05	0.04	0.07	0.06	0.08	0.11	0.09	0.06	0.04	0.05	0.04	0.05	0.04	0.04	0.04	0.50
2	0.05	0.11	0.11	0.12	0.11	0.13	0.14	0.14	0.09	0.12	0.15	0.11	0.11	0.10	0.07	0.07	0.00
3	0.02	0.02	0.04	0.03	0.03	0.02	0.03	0.03	0.02	0.03	0.09	0.08	0.07	0.09	0.06	0.04	0.00
4	0.19	0.17	0.14	0.20	0.20	0.19	0.20	0.17	0.20	0.14	0.09	0.08	0.10	0.09	0.14	0.16	0.50
5	0.37	0.36	0.41	0.36	0.35	0.31	0.26	0.26	0.29	0.39	0.28	0.24	0.23	0.20	0.22	0.32	0.00
6	0.11	0.07	0.15	0.08	0.09	0.06	0.05	0.06	0.06	0.09	0.17	0.17	0.16	0.17	0.20	0.17	0.00
7	0.07	0.06	0.03	0.05	0.05	0.07	0.08	0.08	0.10	0.04	0.03	0.05	0.06	0.06	0.06	0.05	0.00
8	0.13	0.13	0.07	0.08	0.08	0.11	0.10	0.13	0.15	0.12	0.09	0.13	0.14	0.14	0.10	0.10	0.00
9	0.04	0.03	0.03	0.02	0.02	0.02	0.02	0.03	0.03	0.03	0.06	0.09	0.09	0.12	0.09	0.05	0.00

* COMBINED CLASSES ARE DEFINED AS FOLLOWS:
1=UNSTABLE, LOW WIND 2=UNSTABLE, MODERATE WIND 3=UNSTABLE, HIGH WIND
4=NEUTRAL, LOW WIND 5=NEUTRAL MODERATE WIND 6=NEUTRAL, HIGH WIND
7=STABLE, LOW WIND 8=STABLE, MODERATE WIND 9=STABLE, HIGH WIND

PLUME LENGTH FREQUENCY TABLE

CIRCULAR MECHANICAL DRAFT COOLING TOWERS - CATAWBA NUCLEAR STATION

SEASON=ANNUAL

DISTANCE FROM TOWER (M)	WIND FROM N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	SUM
	PLUME HEADED S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	SUM
50.	6.74	7.05	10.78	3.99	4.11	2.85	4.07	4.98	5.38	14.43	13.25	5.99	5.24	3.61	3.71	3.81	100.00
100.	6.74	7.05	10.78	3.99	4.11	2.85	4.07	4.98	5.38	14.43	13.25	5.99	5.24	3.61	3.71	3.81	100.00
150.	5.66	5.54	8.81	2.97	2.97	2.00	2.70	3.46	4.07	10.85	9.60	4.43	3.92	2.93	3.06	3.18	76.14
200.	3.15	5.36	8.68	1.31	1.38	1.30	1.65	1.62	1.98	10.32	9.11	2.41	2.19	2.02	2.01	1.60	56.10
250.	2.66	3.65	6.11	1.13	1.18	0.62	0.89	1.40	1.71	6.26	5.69	2.12	1.85	0.96	1.06	1.33	38.61
300.	2.48	3.65	6.11	1.03	1.06	0.47	0.67	1.24	1.54	6.26	5.68	1.98	1.70	0.80	0.77	1.17	36.62
350.	2.48	3.44	5.77	1.03	1.06	0.47	0.67	1.24	1.54	5.80	5.24	1.98	1.70	0.80	0.77	1.17	35.17
400.	2.48	3.44	5.77	1.03	1.06	0.41	0.61	1.24	1.54	5.80	5.24	1.98	1.70	0.68	0.63	1.17	34.79
450.	2.48	3.31	5.56	1.03	1.06	0.41	0.61	1.24	1.54	5.51	4.98	1.98	1.70	0.68	0.63	1.17	33.90
500.	2.48	3.11	5.13	1.03	1.06	0.41	0.61	1.24	1.54	4.95	4.57	1.98	1.70	0.68	0.63	1.17	32.29
550.	2.48	3.11	5.13	1.03	1.06	0.41	0.61	1.24	1.54	4.95	4.57	1.98	1.70	0.68	0.63	1.17	32.29
600.	2.48	3.11	5.13	1.03	1.06	0.41	0.61	1.24	1.54	4.95	4.57	1.98	1.70	0.68	0.63	1.17	32.29
650.	2.48	3.11	5.13	1.03	1.06	0.41	0.61	1.24	1.54	4.95	4.57	1.98	1.70	0.68	0.63	1.17	32.29
700.	2.48	3.11	5.13	1.03	1.06	0.41	0.61	1.24	1.54	4.95	4.57	1.98	1.70	0.68	0.63	1.17	32.29
750.	2.48	3.11	5.13	1.03	1.06	0.41	0.61	1.24	1.54	4.95	4.57	1.98	1.70	0.68	0.63	1.17	32.29
800.	2.48	3.11	5.13	1.03	1.06	0.41	0.61	1.24	1.54	4.95	4.57	1.98	1.70	0.68	0.63	1.17	32.29
850.	2.48	3.11	5.13	1.03	1.06	0.41	0.61	1.24	1.54	4.95	4.57	1.98	1.70	0.68	0.63	1.17	32.29
900.	2.48	3.11	5.13	1.03	1.06	0.41	0.61	1.24	1.54	4.95	4.57	1.98	1.70	0.68	0.63	1.17	32.29
950.	2.48	2.89	4.90	1.03	1.06	0.41	0.61	1.24	1.54	4.62	4.33	1.98	1.70	0.68	0.63	1.17	31.28
1000.	2.48	2.76	4.67	1.03	1.06	0.41	0.61	1.24	1.54	4.26	4.07	1.98	1.70	0.68	0.63	1.17	30.26
1050.	2.48	2.74	4.67	1.03	1.06	0.41	0.61	1.24	1.54	4.26	4.07	1.98	1.70	0.68	0.63	1.17	30.26
1100.	2.48	2.74	4.67	1.03	1.06	0.35	0.51	1.24	1.54	4.26	4.07	1.98	1.70	0.55	0.49	1.17	29.83
1150.	2.48	2.52	4.33	1.03	1.06	0.35	0.51	1.24	1.54	3.88	3.78	1.98	1.70	0.55	0.49	1.17	28.61
1200.	2.48	2.52	4.33	1.03	1.06	0.35	0.51	1.24	1.54	3.88	3.78	1.98	1.70	0.55	0.49	1.17	28.61
1250.	2.21	2.52	4.33	0.87	0.99	0.35	0.51	1.09	1.40	3.88	3.78	1.79	1.58	0.55	0.49	1.05	27.40
1300.	2.21	2.52	4.33	0.87	0.99	0.35	0.51	1.09	1.40	3.88	3.78	1.79	1.58	0.55	0.49	1.05	27.40
1350.	2.21	2.52	4.33	0.87	0.99	0.35	0.51	1.09	1.40	3.88	3.78	1.79	1.58	0.55	0.49	1.05	27.40
1400.	1.97	2.52	4.33	0.72	0.92	0.35	0.51	0.97	1.28	3.88	3.78	1.64	1.43	0.55	0.49	0.88	26.21
1450.	1.97	2.52	4.33	0.72	0.92	0.35	0.51	0.97	1.28	3.88	3.78	1.64	1.43	0.55	0.49	0.88	26.21
1500.	1.73	2.52	4.33	0.63	0.87	0.35	0.51	0.81	1.16	3.88	3.78	1.41	1.30	0.55	0.49	0.71	25.04
1550.	1.73	2.52	4.33	0.63	0.87	0.35	0.51	0.81	1.16	3.88	3.78	1.41	1.30	0.55	0.49	0.71	25.04
1600.	1.73	2.36	4.03	0.63	0.87	0.35	0.51	0.81	1.16	3.50	3.54	1.41	1.30	0.55	0.49	0.71	23.97
1650.	1.73	2.11	3.71	0.63	0.87	0.30	0.44	0.81	1.16	3.14	3.19	1.41	1.30	0.40	0.39	0.71	22.31
1700.	1.73	2.11	3.71	0.63	0.87	0.30	0.44	0.81	1.16	3.14	3.19	1.41	1.30	0.40	0.39	0.71	22.31
1750.	1.51	2.11	3.71	0.57	0.79	0.30	0.44	0.68	1.01	3.14	3.19	1.20	1.12	0.40	0.39	0.58	21.14
1800.	1.51	2.11	3.71	0.57	0.79	0.30	0.44	0.68	1.01	3.14	3.19	1.20	1.12	0.40	0.39	0.58	21.14
1850.	1.51	1.90	3.27	0.57	0.79	0.30	0.44	0.68	1.01	2.58	2.81	1.20	1.12	0.40	0.39	0.58	19.55
1900.	1.51	1.90	3.27	0.57	0.79	0.30	0.44	0.68	1.01	2.58	2.81	1.20	1.12	0.40	0.39	0.58	19.55
1950.	1.51	1.90	3.27	0.57	0.79	0.30	0.44	0.68	1.01	2.58	2.81	1.20	1.12	0.40	0.39	0.58	19.55
2000.	1.51	1.90	3.27	0.57	0.79	0.30	0.44	0.68	1.01	2.58	2.81	1.20	1.12	0.40	0.39	0.58	19.55
2050.	1.51	1.66	2.90	0.57	0.79	0.24	0.37	0.68	1.01	2.25	2.47	1.20	1.12	0.30	0.29	0.58	17.94
2100.	1.26	1.66	2.90	0.50	0.69	0.24	0.37	0.64	0.84	2.25	2.47	1.07	0.95	0.30	0.29	0.42	16.85
2150.	1.26	1.66	2.90	0.50	0.69	0.24	0.37	0.64	0.84	2.25	2.47	1.07	0.95	0.30	0.29	0.42	16.85
2200.	1.26	1.66	2.90	0.50	0.69	0.24	0.37	0.64	0.84	2.25	2.47	1.07	0.95	0.30	0.29	0.42	16.85
2250.	1.26	1.66	2.90	0.50	0.69	0.24	0.37	0.64	0.84	2.25	2.47	1.07	0.95	0.30	0.29	0.42	16.85
2300.	1.26	1.66	2.90	0.50	0.69	0.24	0.37	0.64	0.84	2.25	2.47	1.07	0.95	0.30	0.29	0.42	16.85
2350.	1.26	1.66	2.90	0.50	0.69	0.24	0.37	0.64	0.84	2.25	2.47	1.07	0.95	0.30	0.29	0.42	16.85
2400.	1.26	1.66	2.90	0.50	0.69	0.24	0.37	0.64	0.84	2.25	2.47	1.07	0.95	0.30	0.29	0.42	16.85
2450.	1.26	1.47	2.45	0.50	0.69	0.24	0.37	0.64	0.84	1.83	2.13	1.07	0.95	0.30	0.29	0.42	15.46
2500.	1.26	1.47	2.45	0.50	0.69	0.24	0.37	0.64	0.84	1.83	2.13	1.07	0.95	0.30	0.29	0.42	15.46

PLUME LENGTH FREQUENCY TABLE

CIRCULAR MECHANICAL DRAFT COOLING TOWERS - CATAWBA NUCLEAR STATION

SEASON=ANNUAL

DISTANCE FROM TOWER (M)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	SUM
	WIND FROM																
	PLUME HEADED																
	S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	SUM
2550.	1.26	1.47	2.45	0.50	0.69	0.24	0.37	0.64	0.84	1.83	2.13	1.07	0.95	0.30	0.29	0.42	15.46
2600.	1.26	1.47	2.45	0.50	0.69	0.24	0.37	0.64	0.84	1.83	2.13	1.07	0.95	0.30	0.29	0.42	15.46
2650.	1.26	1.47	2.45	0.50	0.69	0.24	0.37	0.64	0.84	1.83	2.13	1.07	0.95	0.30	0.29	0.42	15.46
2700.	1.26	1.47	2.45	0.50	0.69	0.24	0.37	0.64	0.84	1.83	2.13	1.07	0.95	0.30	0.29	0.42	15.46
2750.	1.26	1.47	2.45	0.50	0.69	0.24	0.37	0.64	0.84	1.83	2.13	1.07	0.95	0.30	0.29	0.42	15.46
2800.	1.26	1.47	2.45	0.50	0.69	0.24	0.37	0.64	0.84	1.83	2.13	1.07	0.95	0.30	0.29	0.42	15.46
2850.	1.26	1.47	2.45	0.50	0.69	0.24	0.37	0.64	0.84	1.83	2.13	1.07	0.95	0.30	0.29	0.42	15.46
2900.	1.02	1.47	2.45	0.43	0.60	0.24	0.37	0.50	0.75	1.83	2.13	0.87	0.77	0.30	0.29	0.33	14.35
2950.	1.02	1.47	2.45	0.43	0.60	0.24	0.37	0.50	0.75	1.83	2.13	0.87	0.77	0.30	0.29	0.33	14.35
3000.	1.02	1.47	2.45	0.43	0.60	0.24	0.37	0.50	0.75	1.83	2.13	0.87	0.77	0.30	0.29	0.33	14.35
3050.	1.02	1.47	2.45	0.43	0.60	0.24	0.37	0.50	0.75	1.83	2.13	0.87	0.77	0.30	0.29	0.33	14.35
3100.	1.02	1.47	2.45	0.43	0.60	0.24	0.37	0.50	0.75	1.83	2.13	0.87	0.77	0.30	0.29	0.33	14.35
3150.	1.02	1.25	2.06	0.43	0.60	0.24	0.37	0.50	0.75	1.53	1.72	0.87	0.77	0.30	0.29	0.33	13.03
3200.	1.02	1.25	2.06	0.43	0.60	0.24	0.37	0.50	0.75	1.53	1.72	0.87	0.77	0.30	0.29	0.33	13.03
3250.	1.02	1.25	2.06	0.43	0.60	0.24	0.37	0.50	0.75	1.53	1.72	0.87	0.77	0.30	0.29	0.33	13.03
3300.	1.02	1.25	2.06	0.43	0.60	0.24	0.37	0.50	0.75	1.53	1.72	0.87	0.77	0.30	0.29	0.33	13.03
3350.	1.02	1.25	2.06	0.43	0.60	0.24	0.37	0.50	0.75	1.53	1.72	0.87	0.77	0.30	0.29	0.33	13.03
3400.	1.02	1.25	2.06	0.43	0.60	0.24	0.37	0.50	0.75	1.53	1.72	0.87	0.77	0.30	0.29	0.33	13.03
3450.	1.02	1.25	2.06	0.43	0.60	0.24	0.37	0.50	0.75	1.53	1.72	0.87	0.77	0.30	0.29	0.33	13.03
3500.	1.02	1.25	2.06	0.43	0.60	0.24	0.37	0.50	0.75	1.53	1.72	0.87	0.77	0.30	0.29	0.33	13.03
3550.	1.02	1.25	2.06	0.43	0.60	0.24	0.37	0.50	0.75	1.53	1.72	0.87	0.77	0.30	0.29	0.33	13.03
3600.	1.02	1.25	2.06	0.43	0.60	0.24	0.37	0.50	0.75	1.53	1.72	0.87	0.77	0.30	0.29	0.33	13.03
3650.	1.02	1.25	2.06	0.43	0.60	0.24	0.37	0.50	0.75	1.53	1.72	0.87	0.77	0.30	0.29	0.33	13.03
3700.	0.88	1.25	2.06	0.34	0.44	0.24	0.37	0.42	0.60	1.53	1.72	0.62	0.58	0.30	0.29	0.26	11.91
3750.	0.88	1.25	2.06	0.34	0.44	0.24	0.37	0.42	0.60	1.53	1.72	0.62	0.58	0.30	0.29	0.26	11.91
3800.	0.88	1.25	2.06	0.34	0.44	0.24	0.37	0.42	0.60	1.53	1.72	0.62	0.58	0.30	0.29	0.26	11.91
3850.	0.88	1.25	2.06	0.34	0.44	0.24	0.37	0.42	0.60	1.53	1.72	0.62	0.58	0.30	0.29	0.26	11.91
3900.	0.88	1.03	1.66	0.34	0.44	0.24	0.37	0.42	0.60	1.15	1.25	0.62	0.58	0.30	0.29	0.26	10.44
3950.	0.88	1.03	1.66	0.34	0.44	0.24	0.37	0.42	0.60	1.15	1.25	0.62	0.58	0.30	0.29	0.26	10.44
4000.	0.88	1.03	1.66	0.34	0.44	0.24	0.37	0.42	0.60	1.15	1.25	0.62	0.58	0.30	0.29	0.26	10.44
4050.	0.88	1.03	1.66	0.34	0.44	0.24	0.37	0.42	0.60	1.15	1.25	0.62	0.58	0.30	0.29	0.26	10.44
4100.	0.88	1.03	1.66	0.34	0.44	0.24	0.37	0.42	0.60	1.15	1.25	0.62	0.58	0.30	0.29	0.26	10.44
4150.	0.88	1.03	1.66	0.34	0.44	0.24	0.37	0.42	0.60	1.15	1.25	0.62	0.58	0.30	0.29	0.26	10.44
4200.	0.88	1.03	1.66	0.34	0.44	0.24	0.37	0.42	0.60	1.15	1.25	0.62	0.58	0.30	0.29	0.26	10.44
4250.	0.88	1.03	1.66	0.34	0.44	0.24	0.37	0.42	0.60	1.15	1.25	0.62	0.58	0.30	0.29	0.26	10.44
4300.	0.88	1.03	1.66	0.34	0.44	0.24	0.37	0.42	0.60	1.15	1.25	0.62	0.58	0.30	0.29	0.26	10.44
4350.	0.88	1.03	1.66	0.34	0.44	0.24	0.37	0.42	0.60	1.15	1.25	0.62	0.58	0.30	0.29	0.26	10.44
4400.	0.88	1.03	1.66	0.34	0.44	0.24	0.37	0.42	0.60	1.15	1.25	0.62	0.58	0.30	0.29	0.26	10.44
4450.	0.88	1.03	1.66	0.34	0.44	0.24	0.37	0.42	0.60	1.15	1.25	0.62	0.58	0.30	0.29	0.26	10.44
4500.	0.88	1.03	1.66	0.34	0.44	0.24	0.37	0.42	0.60	1.15	1.25	0.62	0.58	0.30	0.29	0.26	10.44
4550.	0.88	1.03	1.66	0.34	0.44	0.24	0.37	0.42	0.60	1.15	1.25	0.62	0.58	0.30	0.29	0.26	10.44
4600.	0.65	1.03	1.66	0.26	0.33	0.24	0.37	0.26	0.38	1.15	1.25	0.47	0.45	0.30	0.29	0.19	9.29
4650.	0.65	1.03	1.66	0.26	0.33	0.24	0.37	0.26	0.38	1.15	1.25	0.47	0.45	0.30	0.29	0.19	9.29
4700.	0.65	1.03	1.66	0.26	0.33	0.24	0.37	0.26	0.38	1.15	1.25	0.47	0.45	0.30	0.29	0.19	9.29
4750.	0.65	1.03	1.66	0.26	0.33	0.24	0.37	0.26	0.38	1.15	1.25	0.47	0.45	0.30	0.29	0.19	9.29
4800.	0.65	1.03	1.66	0.26	0.33	0.24	0.37	0.26	0.38	1.15	1.25	0.47	0.45	0.30	0.29	0.19	9.29
4850.	0.65	1.03	1.66	0.26	0.33	0.24	0.37	0.26	0.38	1.15	1.25	0.47	0.45	0.30	0.29	0.19	9.29
4900.	0.65	1.03	1.66	0.26	0.33	0.24	0.37	0.26	0.38	1.15	1.25	0.47	0.45	0.30	0.29	0.19	9.29
4950.	0.65	1.03	1.66	0.26	0.33	0.24	0.37	0.26	0.38	1.15	1.25	0.47	0.45	0.30	0.29	0.19	9.29
5000.	0.65	1.03	1.66	0.26	0.33	0.24	0.37	0.26	0.38	1.15	1.25	0.47	0.45	0.30	0.29	0.19	9.29

********** PLUME HEIGHT FREQUENCY TABLE **********

CIRCULAR MECHANICAL DRAFT COOLING TOWERS - CATAWBA NUCLEAR STATION

SEASON=ANNUAL

HEIGHT FROM TOWER (M)	WIND FROM PLUME HEADED																
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	SUM
	S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	SUM
10.	6.74	7.05	10.78	3.99	4.11	2.85	4.07	4.98	5.38	14.43	13.25	5.99	5.24	3.61	3.71	3.81	100.00
20.	6.74	7.05	10.78	3.99	4.11	2.85	4.07	4.98	5.38	14.43	13.25	5.99	5.24	3.61	3.71	3.81	100.00
30.	6.74	7.05	10.78	3.99	4.11	2.85	4.07	4.98	5.38	14.43	13.25	5.99	5.24	3.61	3.71	3.81	100.00
40.	6.74	7.05	10.78	3.99	4.11	2.85	4.07	4.98	5.38	14.43	13.25	5.99	5.24	3.61	3.71	3.81	100.00
50.	6.74	7.05	10.78	3.99	4.10	2.85	4.07	4.98	5.37	14.43	13.24	5.88	5.21	3.59	3.71	3.80	99.79
60.	6.74	7.05	10.78	3.99	4.10	2.85	4.07	4.98	5.37	14.40	12.98	5.88	5.21	3.59	3.71	3.80	99.51
70.	6.74	7.05	10.78	3.99	4.10	2.85	4.07	4.98	5.37	14.40	12.98	5.88	5.21	3.59	3.71	3.80	99.51
80.	6.32	7.05	10.78	3.48	3.59	2.34	3.23	4.07	4.69	14.40	12.98	4.92	4.41	3.20	3.39	3.55	92.41
90.	6.32	5.54	8.81	3.48	3.59	2.34	3.23	4.07	4.69	10.82	9.33	4.92	4.41	3.20	3.39	3.55	81.69
100.	4.90	5.46	8.78	2.37	2.36	1.93	2.61	2.68	3.18	10.41	9.09	3.55	3.23	2.83	2.94	2.66	68.98
110.	3.15	5.46	8.78	1.31	1.38	1.62	2.13	1.62	1.98	10.41	9.09	2.41	2.19	2.49	2.47	1.60	58.10
120.	3.15	5.43	8.75	1.31	1.38	0.81	1.07	1.62	1.98	10.35	9.02	2.41	2.19	1.20	1.23	1.60	53.50
130.	3.15	5.43	8.75	1.31	1.38	0.64	0.88	1.62	1.98	10.35	9.02	2.41	2.19	1.05	1.10	1.60	52.87
140.	3.15	4.86	8.07	1.31	1.38	0.64	0.88	1.62	1.98	9.34	8.07	2.41	2.19	1.05	1.10	1.60	49.67
150.	2.90	3.81	6.30	1.22	1.28	0.56	0.79	1.52	1.88	6.59	5.98	2.23	2.05	0.90	0.99	1.47	40.47
160.	2.66	3.65	6.11	1.13	1.18	0.56	0.79	1.40	1.71	6.26	5.68	2.12	1.85	0.90	0.99	1.33	38.31
170.	2.48	3.65	6.11	1.03	1.06	0.56	0.79	1.24	1.54	6.26	5.68	1.98	1.70	0.90	0.99	1.17	37.14
180.	2.48	3.65	6.11	1.03	1.06	0.47	0.67	1.24	1.54	6.26	5.68	1.98	1.70	0.80	0.77	1.17	36.62
190.	2.48	3.65	6.11	1.03	1.06	0.47	0.67	1.24	1.54	6.26	5.68	1.98	1.70	0.80	0.77	1.17	36.62
200.	2.48	3.65	6.11	1.03	1.06	0.47	0.67	1.24	1.54	6.26	5.68	1.98	1.70	0.80	0.77	1.17	36.62
210.	2.48	3.44	5.77	1.03	1.06	0.47	0.67	1.24	1.54	5.80	5.24	1.98	1.70	0.80	0.77	1.17	35.17
220.	2.48	3.44	5.77	1.03	1.06	0.47	0.67	1.24	1.54	5.80	5.24	1.98	1.70	0.80	0.77	1.17	35.17
230.	2.48	3.44	5.77	1.03	1.06	0.47	0.67	1.24	1.54	5.80	5.24	1.98	1.70	0.80	0.77	1.17	35.17
240.	2.48	3.44	5.77	1.03	1.06	0.47	0.67	1.24	1.54	5.80	5.24	1.98	1.70	0.80	0.77	1.17	35.17
250.	2.48	3.44	5.77	1.03	1.06	0.41	0.61	1.24	1.54	5.80	5.24	1.98	1.70	0.68	0.63	1.17	34.79
260.	2.48	3.35	5.66	1.03	1.06	0.41	0.61	1.24	1.54	5.71	5.07	1.98	1.70	0.68	0.63	1.17	34.33
270.	2.48	3.21	5.46	1.03	1.06	0.41	0.61	1.24	1.54	5.42	4.82	1.98	1.70	0.68	0.63	1.17	33.45
280.	2.48	3.21	5.46	1.03	1.06	0.41	0.61	1.24	1.54	5.42	4.82	1.98	1.70	0.68	0.63	1.17	33.45
290.	2.48	3.21	5.46	1.03	1.06	0.39	0.60	1.24	1.54	5.42	4.82	1.98	1.70	0.64	0.62	1.17	33.36
300.	2.48	3.02	5.02	1.03	1.06	0.39	0.60	1.24	1.54	4.86	4.41	1.98	1.70	0.64	0.62	1.17	31.75
310.	2.40	3.02	5.02	1.00	1.03	0.39	0.60	1.19	1.45	4.86	4.41	1.92	1.67	0.64	0.62	1.17	31.36
320.	2.40	3.02	5.02	1.00	1.03	0.39	0.60	1.19	1.45	4.86	4.41	1.92	1.67	0.64	0.62	1.17	31.36
330.	2.40	3.02	5.02	1.00	1.03	0.39	0.60	1.19	1.45	4.86	4.41	1.92	1.67	0.64	0.62	1.17	31.36
340.	2.40	3.02	5.02	1.00	1.03	0.39	0.60	1.19	1.45	4.86	4.41	1.92	1.67	0.64	0.62	1.17	31.36
350.	2.40	3.02	5.02	1.00	1.03	0.39	0.60	1.19	1.45	4.86	4.41	1.92	1.67	0.64	0.62	1.17	31.36
360.	2.40	3.02	5.02	1.00	1.03	0.39	0.60	1.19	1.45	4.86	4.41	1.92	1.67	0.64	0.62	1.17	31.36
370.	2.40	3.02	5.02	1.00	1.03	0.39	0.60	1.19	1.45	4.86	4.41	1.92	1.67	0.64	0.62	1.17	31.36
380.	2.40	3.02	5.02	1.00	1.03	0.39	0.60	1.19	1.45	4.86	4.41	1.92	1.67	0.64	0.62	1.17	31.36
390.	2.40	3.02	5.02	1.00	1.03	0.39	0.60	1.19	1.45	4.86	4.41	1.92	1.67	0.64	0.62	1.17	31.36
400.	2.40	3.02	5.02	1.00	1.03	0.39	0.60	1.19	1.45	4.86	4.41	1.92	1.67	0.64	0.62	1.17	31.36
410.	2.40	3.02	5.02	1.00	1.03	0.39	0.60	1.19	1.45	4.86	4.41	1.92	1.67	0.64	0.62	1.17	31.36
420.	2.40	3.02	5.02	1.00	1.03	0.39	0.60	1.19	1.45	4.86	4.41	1.92	1.67	0.64	0.62	1.17	31.36
430.	2.40	3.02	5.02	1.00	1.03	0.39	0.60	1.19	1.45	4.86	4.41	1.92	1.67	0.64	0.62	1.17	31.36
440.	2.40	3.02	5.02	1.00	1.03	0.39	0.60	1.19	1.45	4.86	4.41	1.92	1.67	0.64	0.62	1.17	31.36
450.	2.40	3.02	5.02	1.00	1.03	0.39	0.60	1.19	1.45	4.86	4.41	1.92	1.67	0.64	0.62	1.17	31.36
460.	2.40	3.01	5.01	1.00	1.02	0.39	0.60	1.17	1.45	4.86	4.39	1.92	1.67	0.64	0.62	1.17	31.31
470.	2.40	2.54	4.35	1.00	1.02	0.39	0.60	1.17	1.45	4.11	3.76	1.92	1.67	0.63	0.62	1.17	28.79
480.	2.40	1.58	2.78	1.00	1.02	0.39	0.60	1.17	1.45	2.29	2.34	1.92	1.67	0.63	0.62	1.17	23.01
490.	2.40	1.58	2.78	1.00	1.02	0.22	0.35	1.17	1.45	2.29	2.34	1.92	1.67	0.26	0.27	1.17	21.88
500.	2.15	1.36	2.39	0.91	0.98	0.22	0.35	1.01	1.33	1.99	1.92	1.70	1.54	0.26	0.27	1.00	19.38

********** PLUME HEIGHT FREQUENCY TABLE **********

CIRCULAR MECHANICAL DRAFT COOLING TOWERS - CATAWBA NUCLEAR STATION

SEASON=ANNUAL

HEIGHT	********** WIND FROM **********																
FROM	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	SUM
TOWER	********** PLUME HEADED **********																
(M)	S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	SUM
510.	1.17	1.15	1.99	0.46	0.65	0.22	0.35	0.57	0.75	1.61	1.45	1.01	0.92	0.26	0.27	0.42	13.26
520.	0.94	1.15	1.99	0.39	0.56	0.22	0.35	0.43	0.65	1.61	1.45	0.81	0.75	0.26	0.27	0.33	12.15
530.	0.94	1.15	1.99	0.39	0.56	0.22	0.35	0.43	0.65	1.61	1.45	0.81	0.75	0.26	0.27	0.33	12.15
540.	0.80	0.79	1.61	0.30	0.40	0.22	0.35	0.35	0.51	1.34	1.09	0.56	0.55	0.26	0.27	0.26	9.66
550.	0.80	0.58	1.17	0.30	0.40	0.22	0.35	0.35	0.51	0.79	0.71	0.56	0.55	0.26	0.27	0.26	8.08
560.	0.80	0.58	1.17	0.30	0.40	0.22	0.35	0.35	0.51	0.79	0.71	0.56	0.55	0.26	0.27	0.26	8.08
570.	0.80	0.58	1.17	0.30	0.40	0.22	0.35	0.35	0.51	0.79	0.71	0.56	0.55	0.26	0.27	0.26	8.08
580.	0.57	0.00	0.00	0.22	0.29	0.15	0.30	0.18	0.29	0.00	0.00	0.41	0.43	0.15	0.15	0.19	3.33
590.	0.57	0.00	0.00	0.22	0.29	0.15	0.30	0.18	0.29	0.00	0.00	0.41	0.43	0.15	0.15	0.19	3.33
600.	0.57	0.00	0.00	0.22	0.29	0.15	0.30	0.18	0.29	0.00	0.00	0.41	0.43	0.15	0.15	0.19	3.33
610.	0.57	0.00	0.00	0.22	0.29	0.15	0.30	0.18	0.29	0.00	0.00	0.41	0.43	0.15	0.15	0.19	3.33
620.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
630.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
640.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
650.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
660.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
670.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
680.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
690.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
700.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
710.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
720.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
730.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
740.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
750.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
760.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
770.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
780.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
790.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
800.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
810.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
820.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
830.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
840.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
850.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
860.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
870.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
880.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
890.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
900.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
910.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
920.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
930.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
940.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
950.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
960.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
970.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
980.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
990.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1000.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

PLUME RADIUS FREQUENCY TABLE

CIRCULAR MECHANICAL DRAFT COOLING TOWERS - CATAWBA NUCLEAR STATION

SEASON=ANNUAL

MAXIMUM FROM TOWER (M)	WIND FROM N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	SUM
	PLUME HEADED S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	SUM
5.	6.74	7.05	10.78	3.99	4.11	2.85	4.07	4.98	5.38	14.43	13.25	5.99	5.24	3.61	3.71	3.81	100.00
10.	6.74	7.05	10.78	3.99	4.11	2.85	4.07	4.98	5.38	14.43	13.25	5.99	5.24	3.61	3.71	3.81	100.00
15.	6.74	7.05	10.78	3.99	4.11	2.85	4.07	4.98	5.38	14.43	13.25	5.99	5.24	3.61	3.71	3.81	100.00
20.	6.74	7.05	10.78	3.99	4.11	2.85	4.07	4.98	5.38	14.43	13.25	5.99	5.24	3.61	3.71	3.81	100.00
25.	6.32	7.05	10.78	3.48	3.59	2.34	3.23	4.07	4.69	14.43	13.25	4.92	4.41	3.22	3.39	3.55	92.73
30.	5.66	6.28	9.78	2.96	2.94	1.93	2.61	3.33	3.95	12.56	10.61	4.22	3.74	2.83	2.94	3.13	79.47
35.	5.66	5.46	8.78	2.96	2.94	1.93	2.61	3.33	3.95	10.41	9.09	4.22	3.74	2.83	2.94	3.13	73.98
40.	5.26	5.46	8.78	2.64	2.58	1.66	2.34	2.97	3.60	10.41	9.09	3.93	3.50	2.70	2.74	2.89	70.56
45.	4.77	5.46	8.78	2.25	2.26	1.49	1.99	2.52	3.11	10.41	9.09	3.50	3.11	2.29	2.36	2.55	65.93
50.	3.69	5.46	8.78	1.62	1.62	1.22	1.56	1.86	2.24	10.41	9.09	2.70	2.45	1.87	1.90	1.90	58.35
55.	3.31	5.46	8.78	1.41	1.48	1.11	1.49	1.73	2.06	10.41	9.09	2.53	2.34	1.70	1.76	1.72	56.38
60.	2.90	5.15	8.40	1.22	1.28	1.11	1.49	1.52	1.88	9.84	8.42	2.23	2.05	1.70	1.76	1.47	52.42
65.	2.90	4.79	7.81	1.22	1.28	1.11	1.49	1.52	1.88	9.01	7.88	2.23	2.05	1.70	1.76	1.47	50.10
70.	2.48	4.62	7.60	1.03	1.06	1.11	1.49	1.24	1.54	8.54	7.49	1.98	1.70	1.70	1.76	1.17	46.50
75.	2.48	4.30	7.06	1.03	1.06	0.97	1.31	1.24	1.54	7.20	6.80	1.98	1.70	1.48	1.41	1.17	43.23
80.	2.48	3.65	6.11	1.03	1.06	0.97	1.31	1.24	1.54	6.26	5.68	1.98	1.70	1.48	1.41	1.17	39.07
85.	2.48	3.44	5.77	1.03	1.06	0.67	0.86	1.24	1.54	5.80	5.24	1.98	1.70	0.98	0.94	1.17	35.91
90.	2.48	3.11	5.13	1.03	1.06	0.67	0.86	1.24	1.54	4.95	4.57	1.98	1.70	0.98	0.94	1.17	33.41
95.	2.48	2.89	4.90	1.03	1.06	0.67	0.86	1.24	1.54	4.62	4.33	1.98	1.70	0.98	0.94	1.17	32.40
100.	2.48	2.89	4.90	1.03	1.06	0.62	0.77	1.24	1.54	4.62	4.33	1.98	1.70	0.84	0.80	1.17	31.96
105.	2.48	2.74	4.67	1.03	1.06	0.62	0.77	1.24	1.54	4.26	4.07	1.98	1.70	0.84	0.80	1.17	30.95
110.	2.48	2.52	4.33	1.03	1.06	0.62	0.77	1.24	1.54	3.88	3.78	1.98	1.70	0.84	0.80	1.17	29.73
115.	2.48	2.52	4.33	1.03	1.06	0.52	0.70	1.24	1.54	3.88	3.78	1.98	1.70	0.70	0.62	1.17	29.25
120.	2.40	2.52	4.33	1.00	1.03	0.52	0.70	1.19	1.45	3.88	3.78	1.92	1.67	0.70	0.62	1.17	28.86
125.	2.40	2.52	4.33	1.00	1.03	0.52	0.70	1.19	1.45	3.88	3.78	1.92	1.67	0.70	0.62	1.17	28.86
130.	2.40	2.52	4.33	1.00	1.03	0.49	0.69	1.19	1.45	3.88	3.78	1.92	1.67	0.66	0.61	1.17	28.77
135.	2.12	2.43	4.22	0.83	0.96	0.49	0.69	1.03	1.31	3.78	3.62	1.73	1.56	0.66	0.61	1.05	27.10
140.	2.12	2.43	4.22	0.83	0.96	0.49	0.69	1.03	1.31	3.78	3.62	1.73	1.56	0.66	0.61	1.05	27.10
145.	2.12	2.43	4.22	0.83	0.96	0.49	0.69	1.03	1.31	3.78	3.62	1.73	1.56	0.66	0.61	1.05	27.10
150.	2.12	2.43	4.22	0.83	0.96	0.49	0.69	1.03	1.31	3.78	3.62	1.73	1.56	0.66	0.61	1.05	27.10
155.	1.89	2.43	4.22	0.68	0.88	0.39	0.60	0.92	1.19	3.78	3.62	1.58	1.40	0.56	0.55	0.88	25.58
160.	1.89	2.43	4.22	0.68	0.88	0.39	0.60	0.92	1.19	3.78	3.62	1.58	1.40	0.56	0.55	0.88	25.58
165.	1.64	2.43	4.22	0.60	0.84	0.39	0.60	0.76	1.07	3.78	3.62	1.36	1.28	0.56	0.55	0.71	24.40
170.	1.64	2.27	3.93	0.60	0.84	0.39	0.60	0.76	1.07	3.41	3.38	1.36	1.28	0.56	0.55	0.71	23.34
175.	1.64	2.27	3.93	0.60	0.84	0.33	0.50	0.76	1.07	3.41	3.38	1.36	1.28	0.51	0.48	0.71	23.04
180.	1.64	1.81	3.17	0.60	0.84	0.27	0.43	0.76	1.07	2.49	2.65	1.36	1.28	0.36	0.38	0.71	19.80
185.	1.64	1.81	3.17	0.60	0.84	0.27	0.43	0.76	1.07	2.49	2.65	1.36	1.28	0.36	0.38	0.71	19.80
190.	1.64	1.81	3.17	0.60	0.84	0.27	0.43	0.76	1.07	2.49	2.65	1.36	1.28	0.36	0.38	0.71	19.80
195.	1.64	1.81	3.17	0.60	0.84	0.27	0.43	0.76	1.07	2.49	2.65	1.36	1.28	0.36	0.38	0.71	19.80
200.	1.42	1.81	3.17	0.53	0.75	0.27	0.43	0.63	0.92	2.49	2.65	1.14	1.09	0.36	0.38	0.58	18.62
205.	1.42	1.81	3.17	0.53	0.75	0.27	0.43	0.63	0.92	2.49	2.65	1.14	1.09	0.36	0.38	0.58	18.62
210.	1.42	1.56	2.80	0.53	0.75	0.22	0.35	0.63	0.92	2.15	2.31	1.14	1.09	0.26	0.28	0.58	17.01
215.	1.42	1.56	2.80	0.53	0.75	0.22	0.35	0.63	0.92	2.15	2.31	1.14	1.09	0.26	0.28	0.58	17.01
220.	1.42	1.56	2.80	0.53	0.75	0.22	0.35	0.63	0.92	2.15	2.31	1.14	1.09	0.26	0.28	0.58	17.01
225.	1.42	1.56	2.80	0.53	0.75	0.22	0.35	0.63	0.92	2.15	2.31	1.14	1.09	0.26	0.28	0.58	17.01
230.	1.17	1.56	2.80	0.46	0.66	0.22	0.35	0.59	0.75	2.15	2.31	1.01	0.92	0.26	0.28	0.42	15.92
235.	1.17	1.56	2.80	0.46	0.66	0.22	0.35	0.59	0.75	2.15	2.31	1.01	0.92	0.26	0.28	0.42	15.92
240.	1.17	1.37	2.35	0.46	0.66	0.22	0.35	0.59	0.75	1.73	1.97	1.01	0.92	0.26	0.28	0.42	14.53
245.	1.17	1.37	2.35	0.46	0.66	0.22	0.35	0.59	0.75	1.73	1.97	1.01	0.92	0.26	0.28	0.42	14.53
250.	1.17	1.37	2.35	0.46	0.66	0.22	0.35	0.59	0.75	1.73	1.97	1.01	0.92	0.26	0.28	0.42	14.53

**********PLUME RADIUS FREQUENCY TABLE**********

CIRCULAR MECHANICAL DRAFT COOLING TOWERS - CATAWBA NUCLEAR STATION

SEASON=ANNUAL

MAXIMUM FROM TOWER (MI)	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	SUM
	S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	SUM
	********** WIND FROM **********							PLUME HEADED									
255.	1.17	1.37	2.35	0.46	0.66	0.22	0.35	0.59	0.75	1.73	1.97	1.01	0.92	0.26	0.28	0.42	14.53
260.	1.17	1.37	2.35	0.46	0.66	0.22	0.35	0.59	0.75	1.73	1.97	1.01	0.92	0.26	0.28	0.42	14.53
265.	1.17	1.37	2.35	0.46	0.66	0.22	0.35	0.59	0.75	1.73	1.97	1.01	0.92	0.26	0.28	0.42	14.53
270.	1.17	1.37	2.35	0.46	0.66	0.22	0.35	0.59	0.75	1.73	1.97	1.01	0.92	0.26	0.28	0.42	14.53
275.	0.94	1.37	2.35	0.39	0.56	0.22	0.35	0.45	0.65	1.73	1.97	0.81	0.75	0.26	0.28	0.33	13.42
280.	0.94	1.16	1.96	0.39	0.56	0.22	0.35	0.45	0.65	1.43	1.56	0.81	0.75	0.26	0.28	0.33	12.10
285.	0.94	1.16	1.96	0.39	0.56	0.22	0.35	0.45	0.65	1.43	1.56	0.81	0.75	0.26	0.28	0.33	12.10
290.	0.94	1.16	1.96	0.39	0.56	0.22	0.35	0.45	0.65	1.43	1.56	0.81	0.75	0.26	0.28	0.33	12.10
295.	0.94	1.16	1.96	0.39	0.56	0.22	0.35	0.45	0.65	1.43	1.56	0.81	0.75	0.26	0.28	0.33	12.10
300.	0.94	1.16	1.96	0.39	0.56	0.22	0.35	0.45	0.65	1.43	1.56	0.81	0.75	0.26	0.28	0.33	12.10
305.	0.94	1.16	1.96	0.39	0.56	0.22	0.35	0.45	0.65	1.43	1.56	0.81	0.75	0.26	0.28	0.33	12.10
310.	0.94	1.16	1.96	0.39	0.56	0.22	0.35	0.45	0.65	1.43	1.56	0.81	0.75	0.26	0.28	0.33	12.10
315.	0.80	1.16	1.96	0.30	0.41	0.22	0.35	0.37	0.51	1.43	1.56	0.56	0.55	0.26	0.28	0.26	10.98
320.	0.80	1.16	1.96	0.30	0.41	0.22	0.35	0.37	0.51	1.43	1.56	0.56	0.55	0.26	0.28	0.26	10.98
325.	0.80	0.94	1.56	0.30	0.41	0.22	0.35	0.37	0.52	1.05	1.09	0.56	0.55	0.26	0.28	0.26	9.51
330.	0.80	0.94	1.56	0.30	0.41	0.22	0.35	0.37	0.51	1.05	1.09	0.56	0.55	0.26	0.28	0.26	9.51
335.	0.80	0.94	1.56	0.30	0.41	0.22	0.35	0.37	0.51	1.05	1.09	0.56	0.55	0.26	0.28	0.26	9.51
340.	0.80	0.94	1.56	0.30	0.41	0.22	0.35	0.37	0.51	1.05	1.09	0.56	0.55	0.26	0.28	0.26	9.51
345.	0.80	0.94	1.56	0.30	0.41	0.22	0.35	0.37	0.51	1.05	1.09	0.56	0.55	0.26	0.28	0.26	9.51
350.	0.80	0.94	1.56	0.30	0.41	0.22	0.35	0.37	0.51	1.05	1.09	0.56	0.55	0.26	0.28	0.26	9.51
355.	0.80	0.94	1.56	0.30	0.41	0.22	0.35	0.37	0.51	1.05	1.09	0.56	0.55	0.26	0.28	0.26	9.51
360.	0.80	0.94	1.56	0.30	0.41	0.22	0.35	0.37	0.51	1.05	1.09	0.56	0.55	0.26	0.28	0.26	9.51
365.	0.80	0.94	1.56	0.30	0.41	0.22	0.35	0.37	0.51	1.05	1.09	0.56	0.55	0.26	0.28	0.26	9.51
370.	0.80	0.94	1.56	0.30	0.41	0.22	0.35	0.37	0.51	1.05	1.09	0.56	0.55	0.26	0.28	0.26	9.51
375.	0.80	0.94	1.56	0.30	0.41	0.22	0.35	0.37	0.51	1.05	1.09	0.56	0.55	0.26	0.28	0.26	9.51
380.	0.80	0.94	1.56	0.30	0.41	0.22	0.35	0.37	0.51	1.05	1.09	0.56	0.55	0.26	0.28	0.26	9.51
385.	0.80	0.94	1.56	0.30	0.41	0.22	0.35	0.37	0.51	1.05	1.09	0.56	0.55	0.26	0.28	0.26	9.51
390.	0.80	0.94	1.56	0.30	0.41	0.22	0.35	0.37	0.51	1.05	1.09	0.56	0.55	0.26	0.28	0.26	9.51
395.	0.80	0.94	1.56	0.30	0.41	0.22	0.35	0.37	0.51	1.05	1.09	0.56	0.55	0.26	0.28	0.26	9.51
400.	0.80	0.94	1.56	0.30	0.41	0.22	0.35	0.37	0.51	1.05	1.09	0.56	0.55	0.26	0.28	0.26	9.51
405.	0.80	0.94	1.56	0.30	0.41	0.22	0.35	0.37	0.51	1.05	1.09	0.56	0.55	0.26	0.28	0.26	9.51
410.	0.57	0.94	1.56	0.22	0.30	0.22	0.35	0.20	0.29	1.05	1.09	0.41	0.43	0.26	0.28	0.19	8.36
415.	0.57	0.94	1.56	0.22	0.30	0.15	0.30	0.20	0.29	1.05	1.09	0.41	0.43	0.16	0.16	0.19	8.01
420.	0.57	0.94	1.56	0.22	0.30	0.15	0.30	0.20	0.29	1.05	1.09	0.41	0.43	0.16	0.16	0.19	8.01
425.	0.57	0.94	1.56	0.22	0.30	0.15	0.30	0.20	0.29	1.05	1.09	0.41	0.43	0.16	0.16	0.19	8.01
430.	0.57	0.59	1.18	0.22	0.30	0.15	0.30	0.20	0.29	0.79	0.72	0.41	0.43	0.16	0.16	0.19	6.64
435.	0.57	0.59	1.18	0.22	0.30	0.15	0.30	0.20	0.29	0.79	0.72	0.41	0.43	0.16	0.16	0.19	6.64
440.	0.57	0.59	1.18	0.22	0.30	0.15	0.30	0.20	0.29	0.79	0.72	0.41	0.43	0.16	0.16	0.19	6.64
445.	0.57	0.59	1.18	0.22	0.30	0.15	0.30	0.20	0.29	0.79	0.72	0.41	0.43	0.16	0.16	0.19	6.64
450.	0.57	0.59	1.18	0.22	0.30	0.15	0.30	0.20	0.29	0.79	0.72	0.41	0.43	0.16	0.16	0.19	6.64
455.	0.57	0.59	1.18	0.22	0.30	0.15	0.30	0.20	0.29	0.79	0.72	0.41	0.43	0.16	0.16	0.19	6.64
460.	0.57	0.59	1.18	0.22	0.30	0.15	0.30	0.20	0.29	0.79	0.72	0.41	0.43	0.16	0.16	0.19	6.64
465.	0.57	0.59	1.18	0.22	0.30	0.15	0.30	0.20	0.29	0.79	0.72	0.41	0.43	0.16	0.16	0.19	6.64
470.	0.57	0.59	1.18	0.22	0.30	0.15	0.30	0.20	0.29	0.79	0.72	0.41	0.43	0.16	0.16	0.19	6.64
475.	0.57	0.59	1.18	0.22	0.30	0.15	0.30	0.20	0.29	0.79	0.72	0.41	0.43	0.16	0.16	0.19	6.64
480.	0.57	0.59	1.18	0.22	0.30	0.15	0.30	0.20	0.29	0.79	0.72	0.41	0.43	0.15	0.15	0.19	6.63
485.	0.57	0.59	1.18	0.22	0.30	0.15	0.30	0.20	0.29	0.79	0.72	0.41	0.43	0.15	0.15	0.19	6.63
490.	0.57	0.59	1.18	0.22	0.30	0.15	0.30	0.20	0.29	0.79	0.72	0.41	0.43	0.15	0.15	0.19	6.63
495.	0.57	0.59	1.18	0.22	0.29	0.15	0.30	0.18	0.29	0.79	0.72	0.41	0.43	0.15	0.15	0.19	6.61
500.	0.57	0.58	1.17	0.22	0.29	0.15	0.30	0.18	0.29	0.79	0.71	0.41	0.43	0.15	0.15	0.19	6.58

********** HOURS OF PLUME FOGGING TABLE **********

CIRCULAR MECHANICAL DRAFT COOLING TOWERS - CATAWBA NUCLEAR STATION

SEASON=ANNUAL

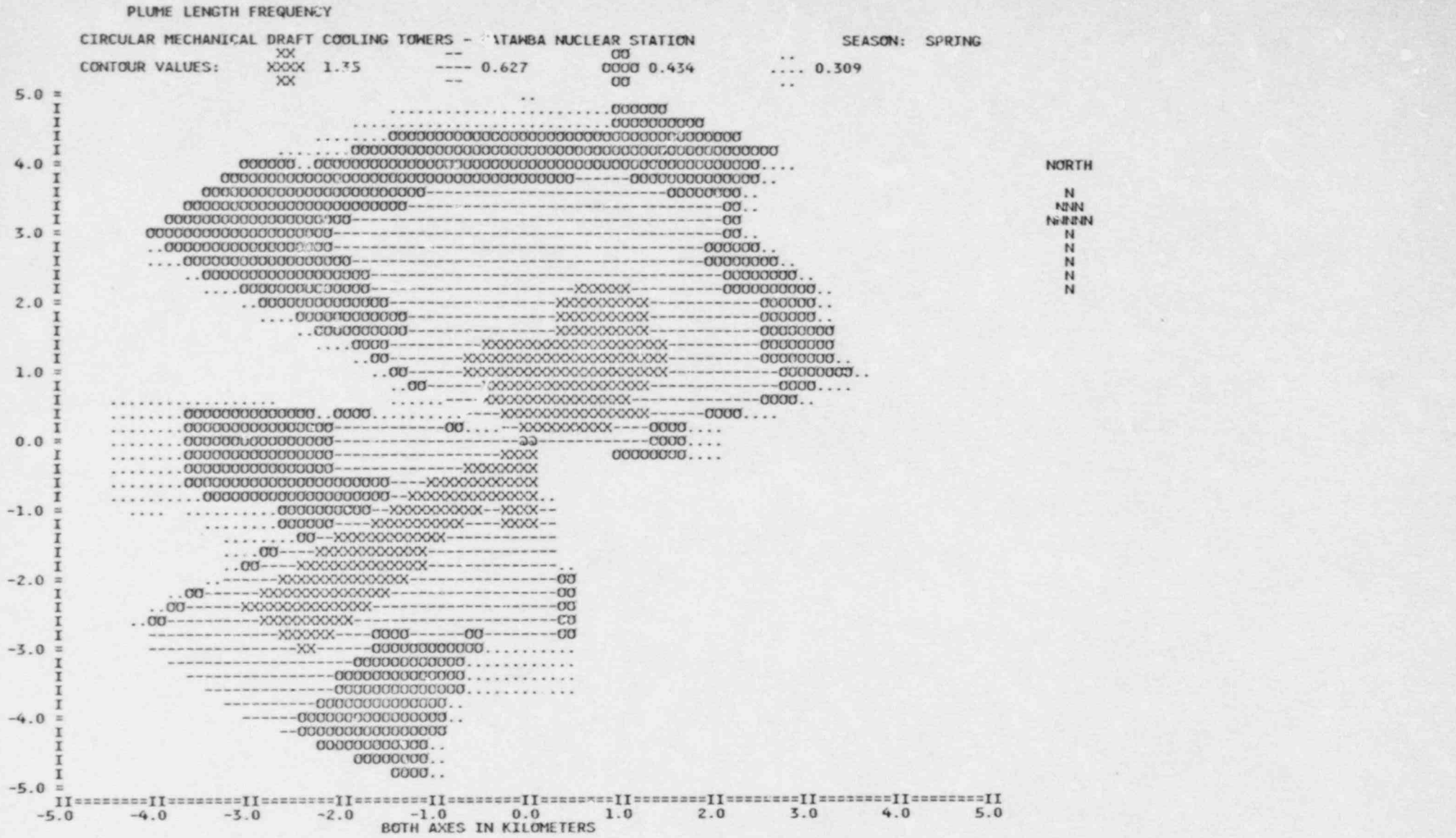
DISTANCE FROM TOWER (M)	WIND FROM N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	AVG
	PLUME HEADED S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	AVG
100.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
300.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
400.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
500.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
600.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
700.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
800.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
900.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1000.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1100.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1200.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1300.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1400.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1500.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1600.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

HOURS OF RIME ICING TABLE

CIRCULAR MECHANICAL DRAFT COOLING TOWERS - CATAWBA NUCLEAR STATION

SEASON=ANNUAL

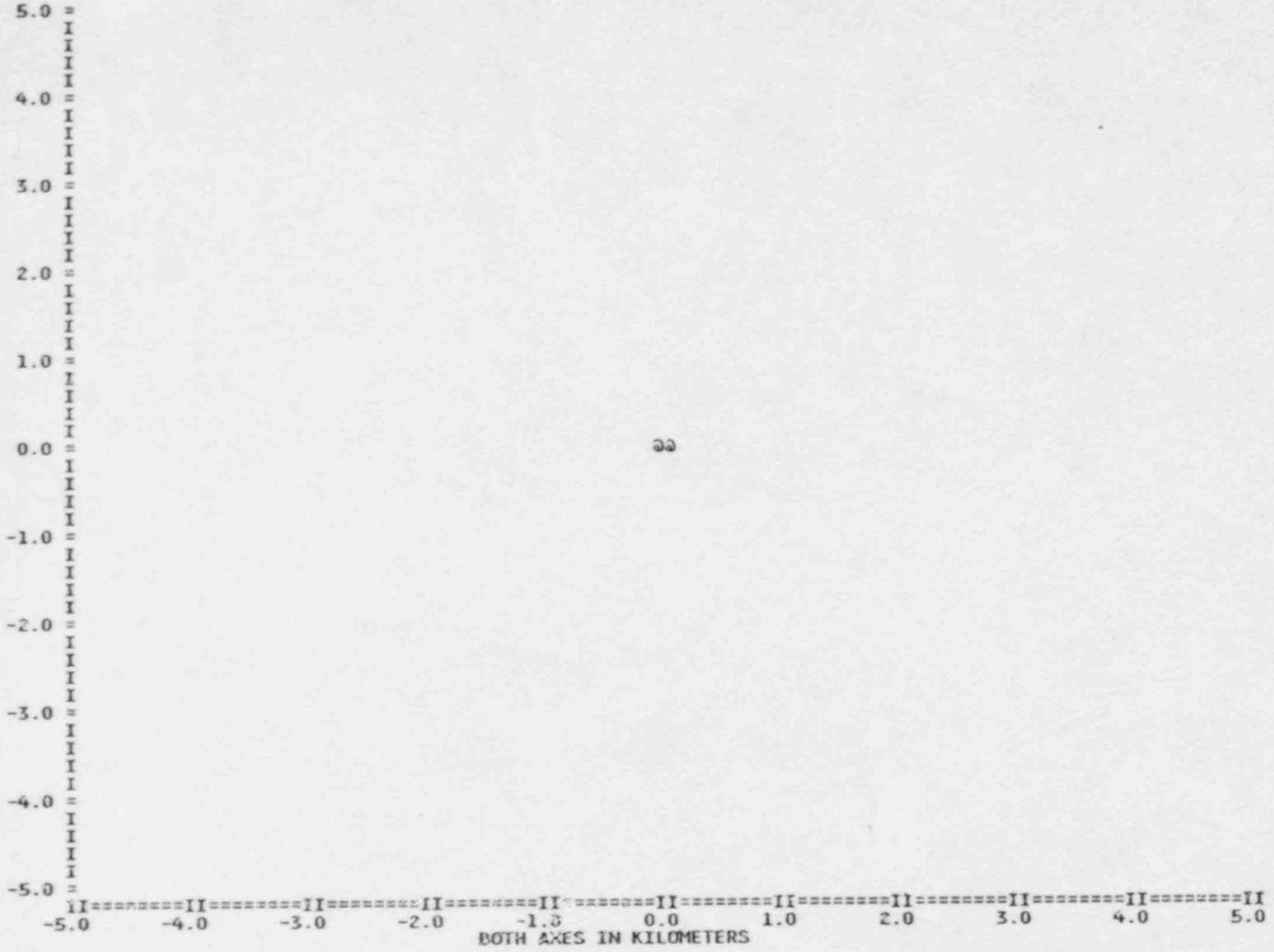
DISTANCE FROM TOWER (M)	WIND FROM PLUME HEADED																
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	AVG
	S	SSW	SW	WSW	W	WNW	NW	NNW	N	NNE	NE	ENE	E	ESE	SE	SSE	AVG
100.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
300.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
400.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
500.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
600.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
700.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
800.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
900.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1000.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1100.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1200.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1300.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1400.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1500.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1600.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

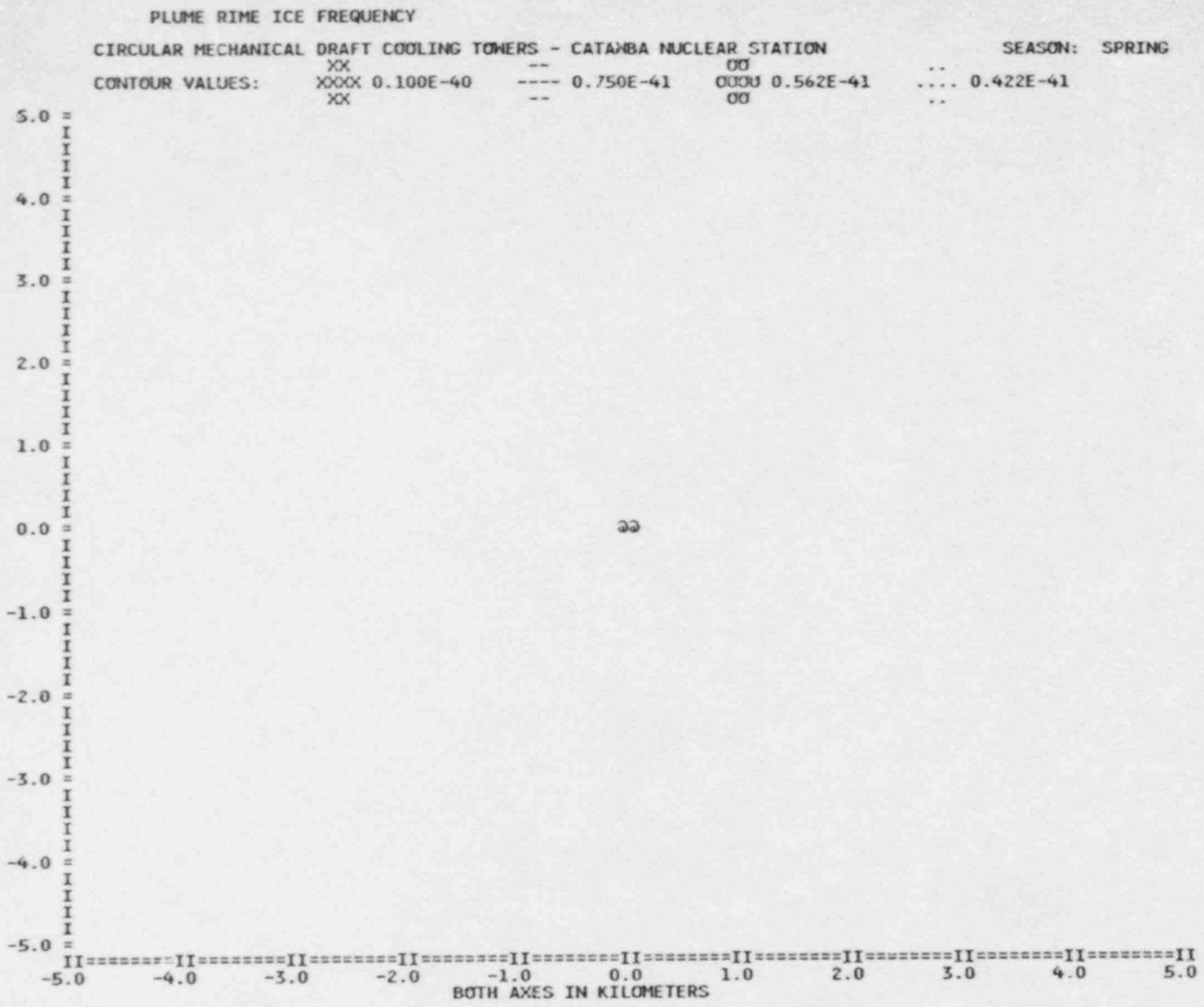

PLUME LENGTH FREQUENCY
CIRCULAR MECHANICAL DRAFT COOLING TOWERS - CATAWBA NUCLEAR STATION
SEASON: SPRING
CONTOUR VALUES: XXXX 1.35 ---- 0.627 0000 0.434 .... 0.309
NORTH
5.0
4.0
3.0
2.0
1.0
0.0
-1.0
-2.0
-3.0
-4.0
-5.0
-5.0 -4.0 -3.0 -2.0 -1.0 0.0 1.0 2.0 3.0 4.0 5.0
BOTH AXES IN KILOMETERS

PLUME FOGGING FREQUENCY

CIRCULAR MECHANICAL DRAFT COOLING TOWERS - CATAWBA NUCLEAR STATION SEASON: SPRING

CONTOUR VALUES: XX XXXX 0.100E-40 -- ---- 0.750E-41 OO OOOO 0.562E-41 .. .... 0.422E-41

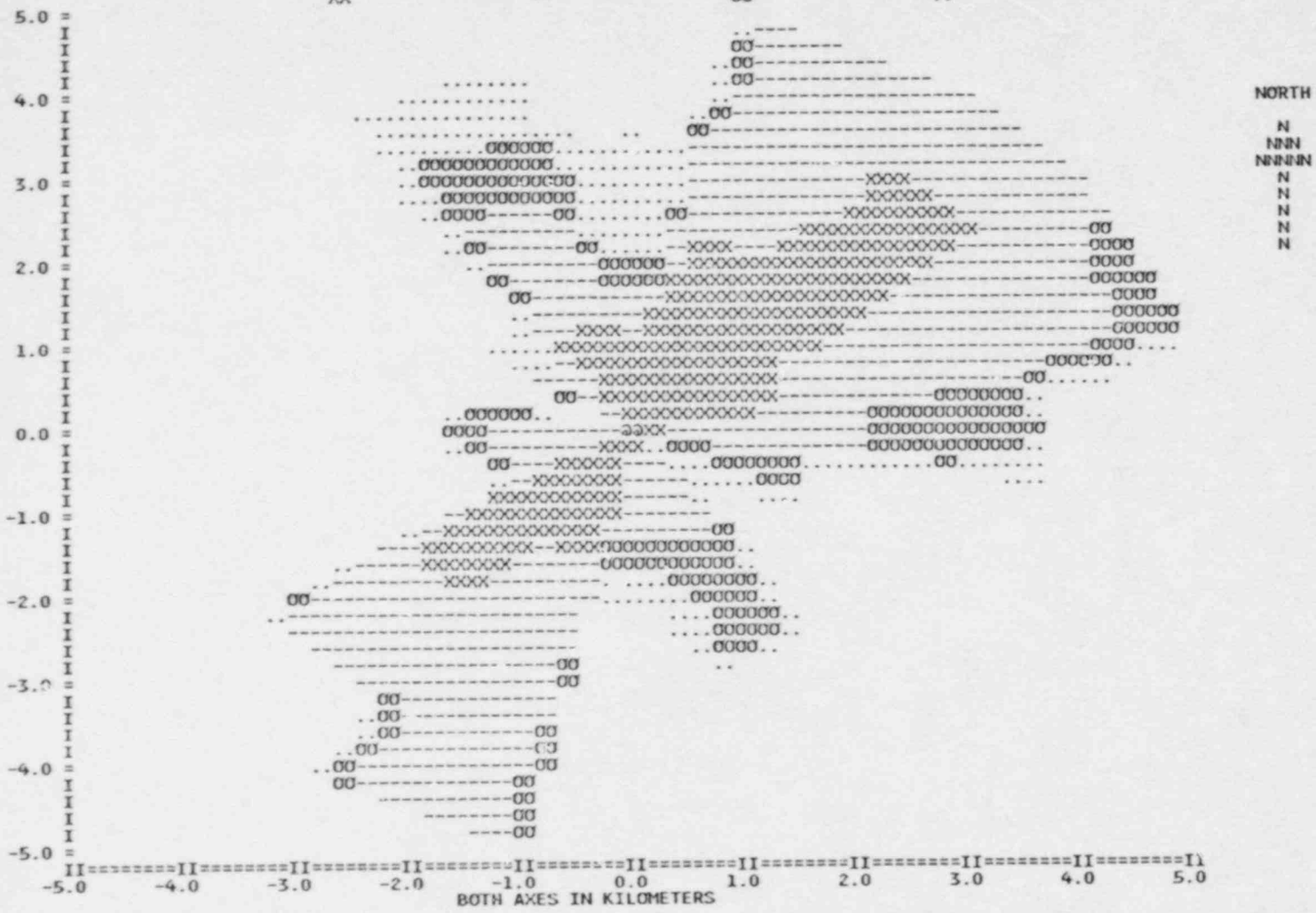



PLUME RIME ICE FREQUENCY
CIRCULAR MECHANICAL DRAFT COOLING TOWERS - CATAWBA NUCLEAR STATION
SEASON: SPRING
CONTOUR VALUES: XXXX 0.100E-40 ---- 0.750E-41 0000 0.562E-41 .... 0.422E-41
NORTH
5.0
4.0
3.0
2.0
1.0
0.0
-1.0
-2.0
-3.0
-4.0
-5.0
-5.0 -4.0 -3.0 -2.0 -1.0 0.0 1.0 2.0 3.0 4.0 5.0
BOTH AXES IN KILOMETERS

PLUME LENGTH FREQUENCY

CIRCULAR MECHANICAL DRAFT COOLING TOWERS - CATAWBA NUCLEAR STATION SEASON: SUMMER

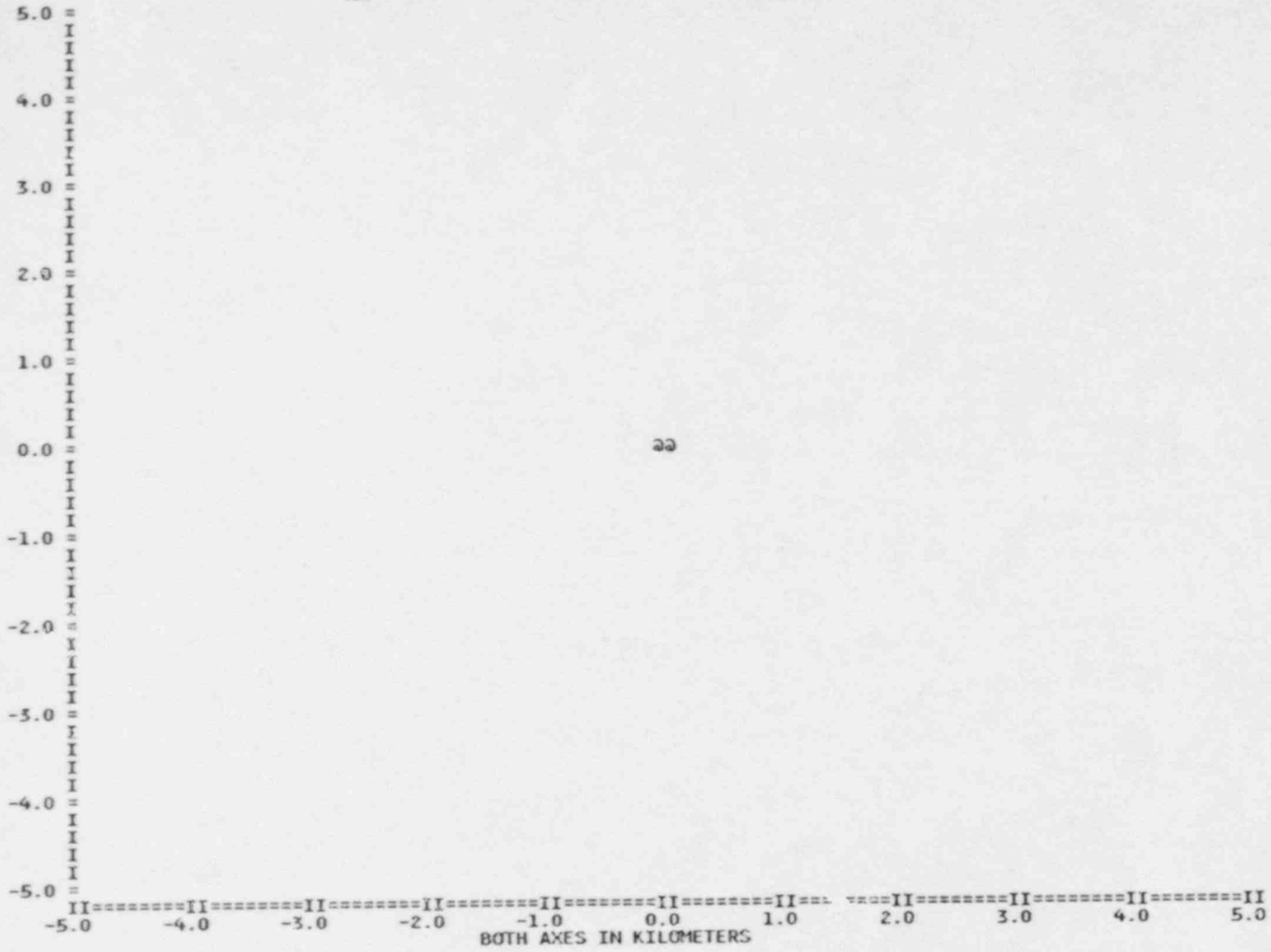
CONTOUR VALUES: XXXX 0.605 ---- 0.213 0000 0.149 .... 0.926E-01



PLUME FOGGING FREQUENCY

CIRCULAR MECHANICAL DRAFT COOLING TOWERS - CATAWBA NUCLEAR STATION SEASON: SUMMER

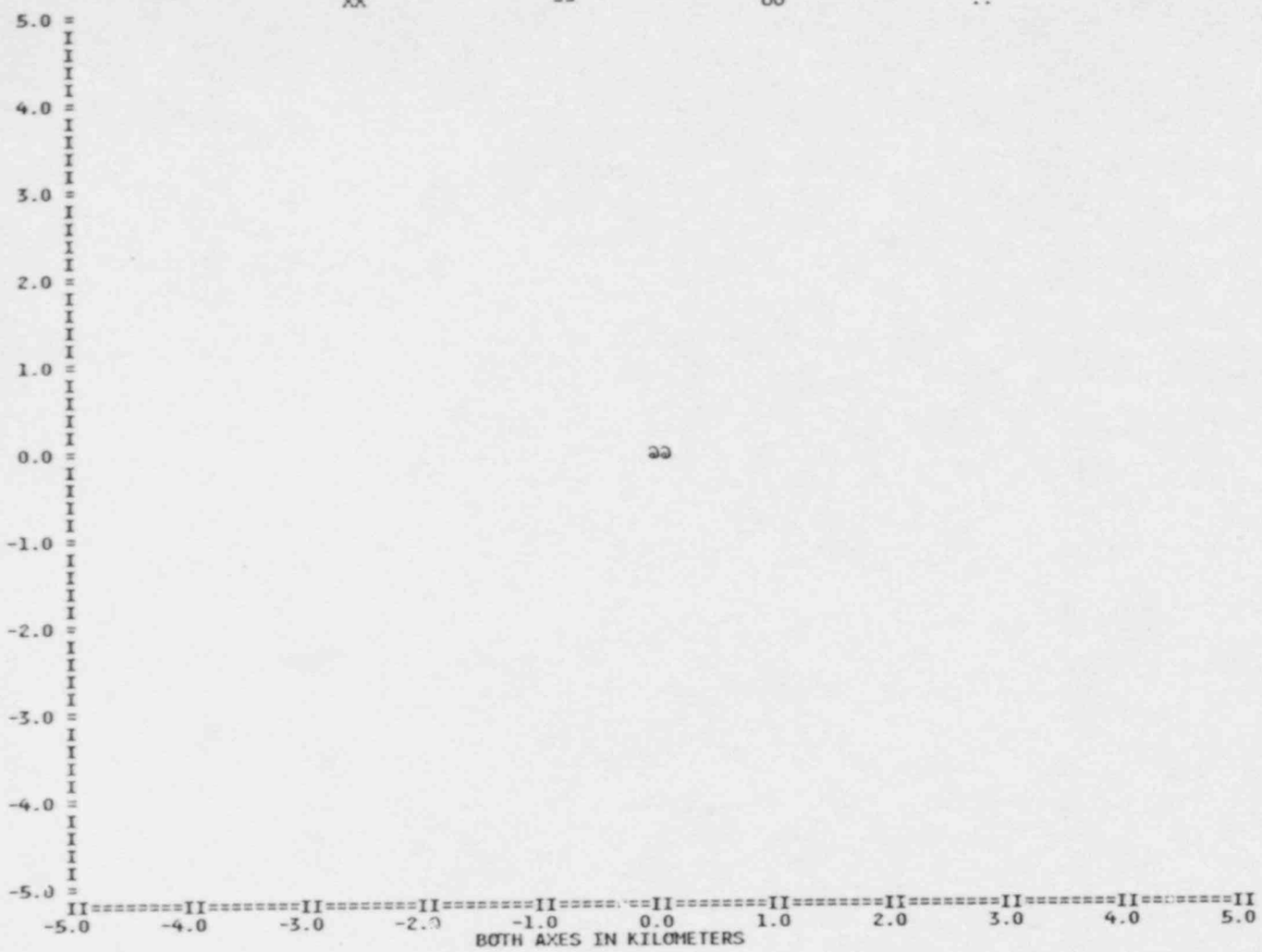
CONTOUR VALUES: XXXX 0.100E-40 ---- 0.750E-41 ØØØØ 0.562E-41 .... 0.422E-41



PLUME RIME ICE FREQUENCY

CIRCULAR MECHANICAL DRAFT COOLING TOWERS - CATAWBA NUCLEAR STATION SEASON: SUMMER

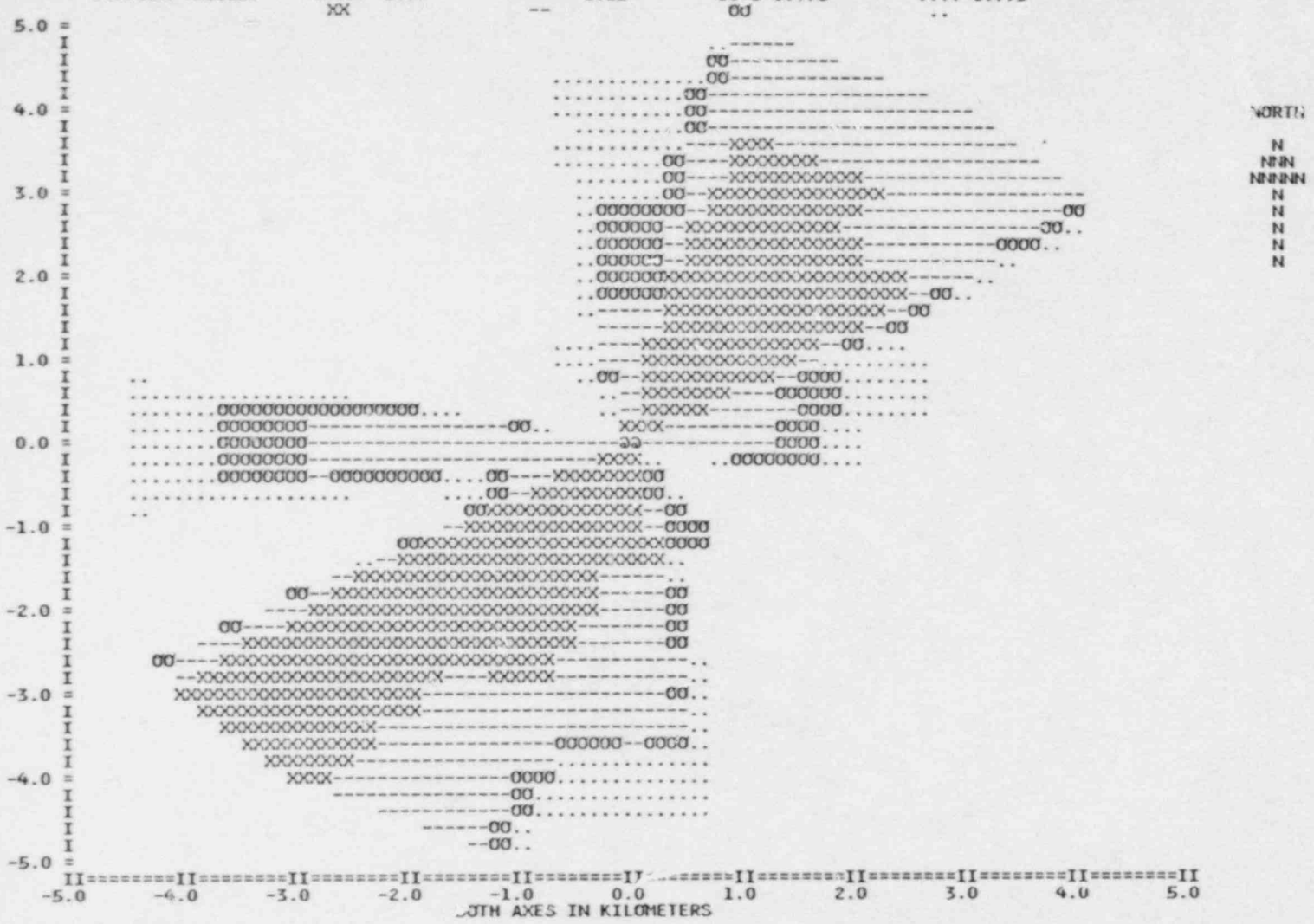
CONTOUR VALUES: XXXX 0.100E-40 ---- 0.750E-41 ØØØØ 0.562E-41 .... 0.422E-41

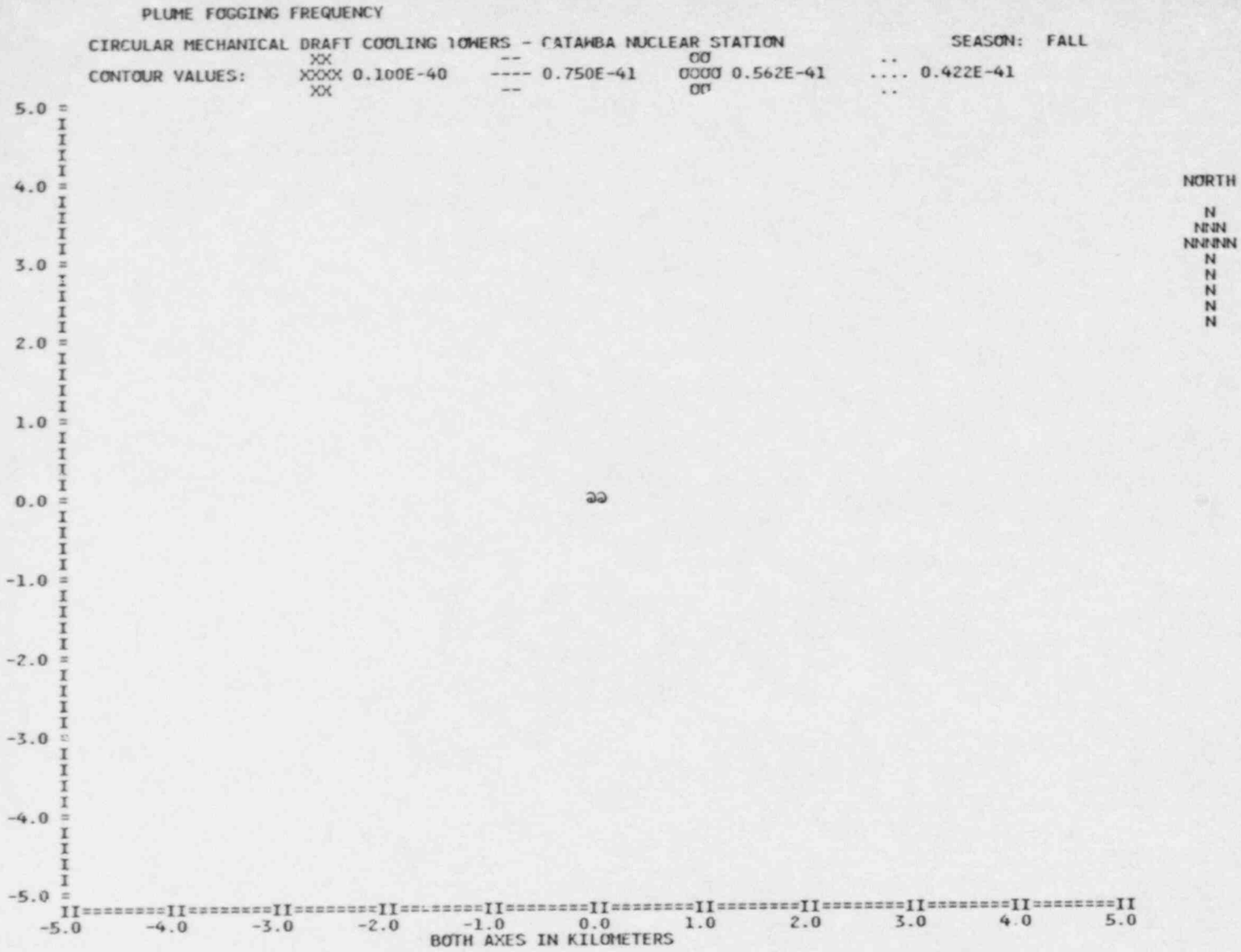


PLUME LENGTH FREQUENCY

CIRCULAR MECHANICAL DRAFT COOLING TOWERS - CATAWBA NUCLEAR STATION SEASON: FALL

CONTOUR VALUES: XXXX 2.07 ---- 1.25 0000 0.978 .... 0.773




PLUME FOGGING FREQUENCY
CIRCULAR MECHANICAL DRAFT COOLING TOWERS - CATAWBA NUCLEAR STATION
SEASON: FALL
CONTOUR VALUES: XXXX 0.100E-40 ---- 0.750E-41 0000 0.562E-41 .... 0.422E-41
NORTH
5.0
4.0
3.0
2.0
1.0
0.0
-1.0
-2.0
-3.0
-4.0
-5.0
-5.0 -4.0 -3.0 -2.0 -1.0 0.0 1.0 2.0 3.0 4.0 5.0
BOTH AXES IN KILOMETERS

PLUME RIME ICE FREQUENCY

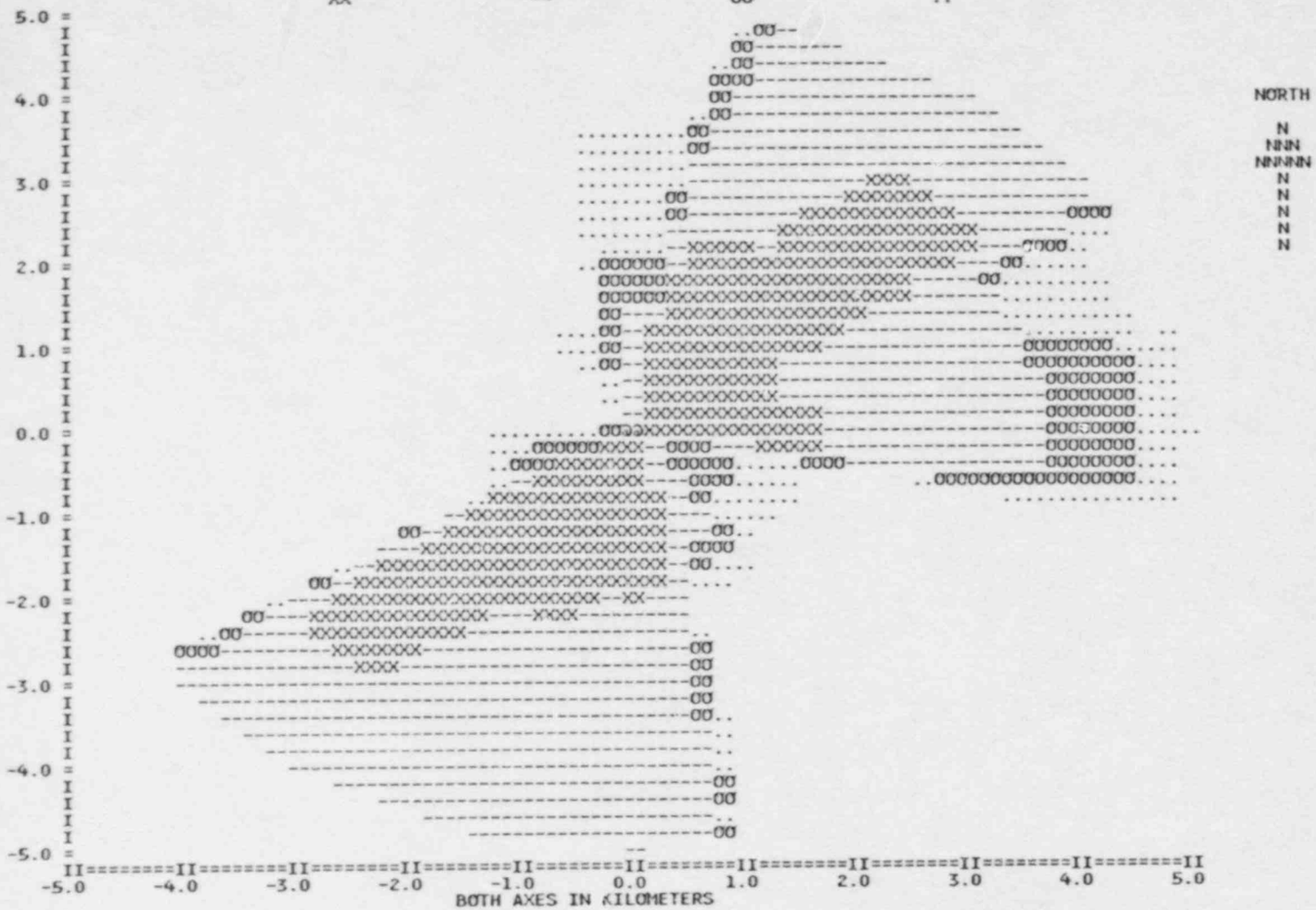
CIRCULAR MECHANICAL DRAFT COOLING TOWERS - CATAWBA NUCLEAR STATION SEASON: FALL

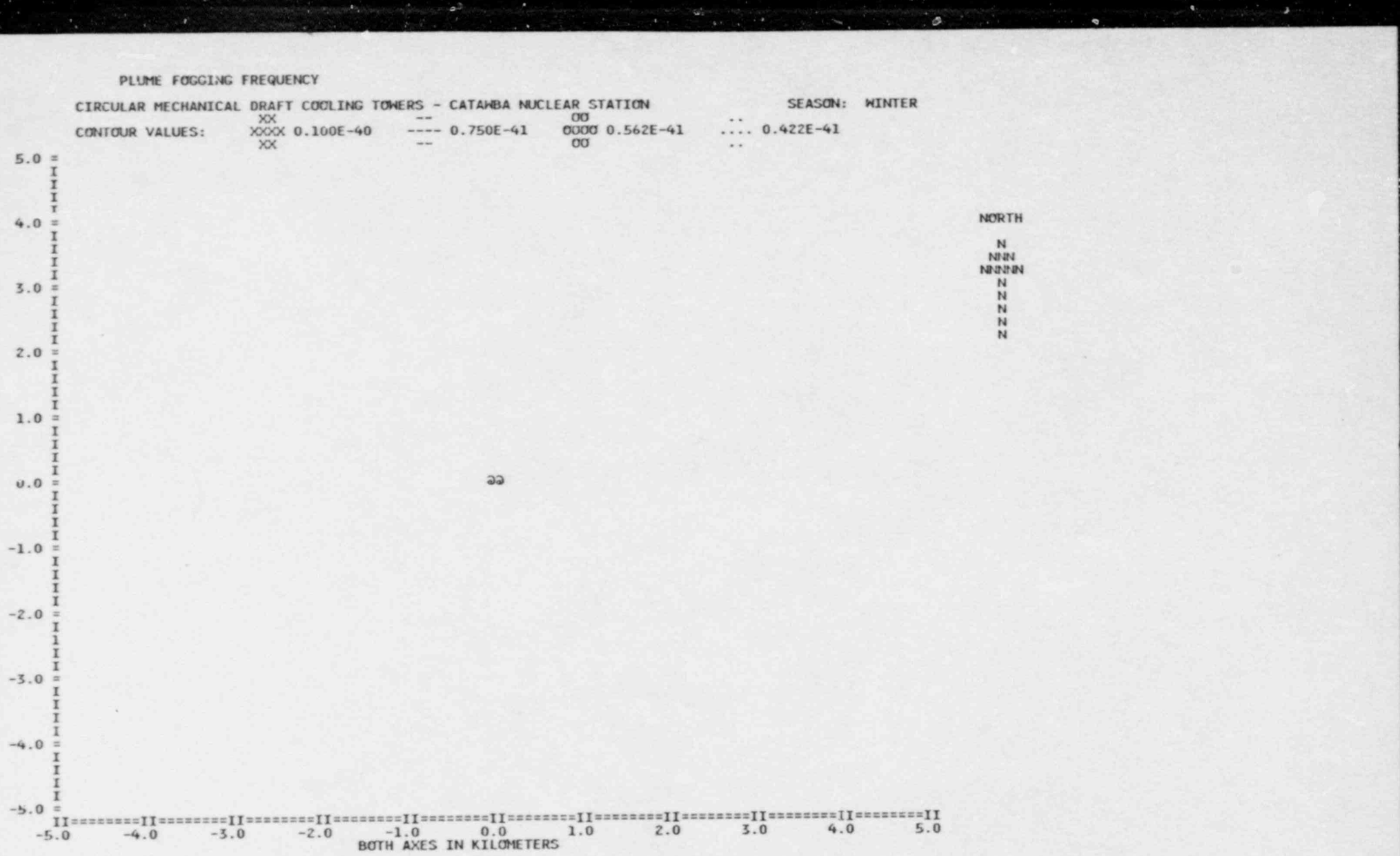
CONTOUR VALUES: XXXX 0.100E-40 ---- 0.750E-41 0000 0.562E-41 .... 0.422E-41

PLUME LENGTH FREQUENCY

CIRCULAR MECHANICAL DRAFT COOLING TOWERS - CATAWBA NUCLEAR STATION SEASON: WINTER

CONTOUR VALUES: XXXX 3.08 ---- 1.76 OOOO 1.40 .... 1.13

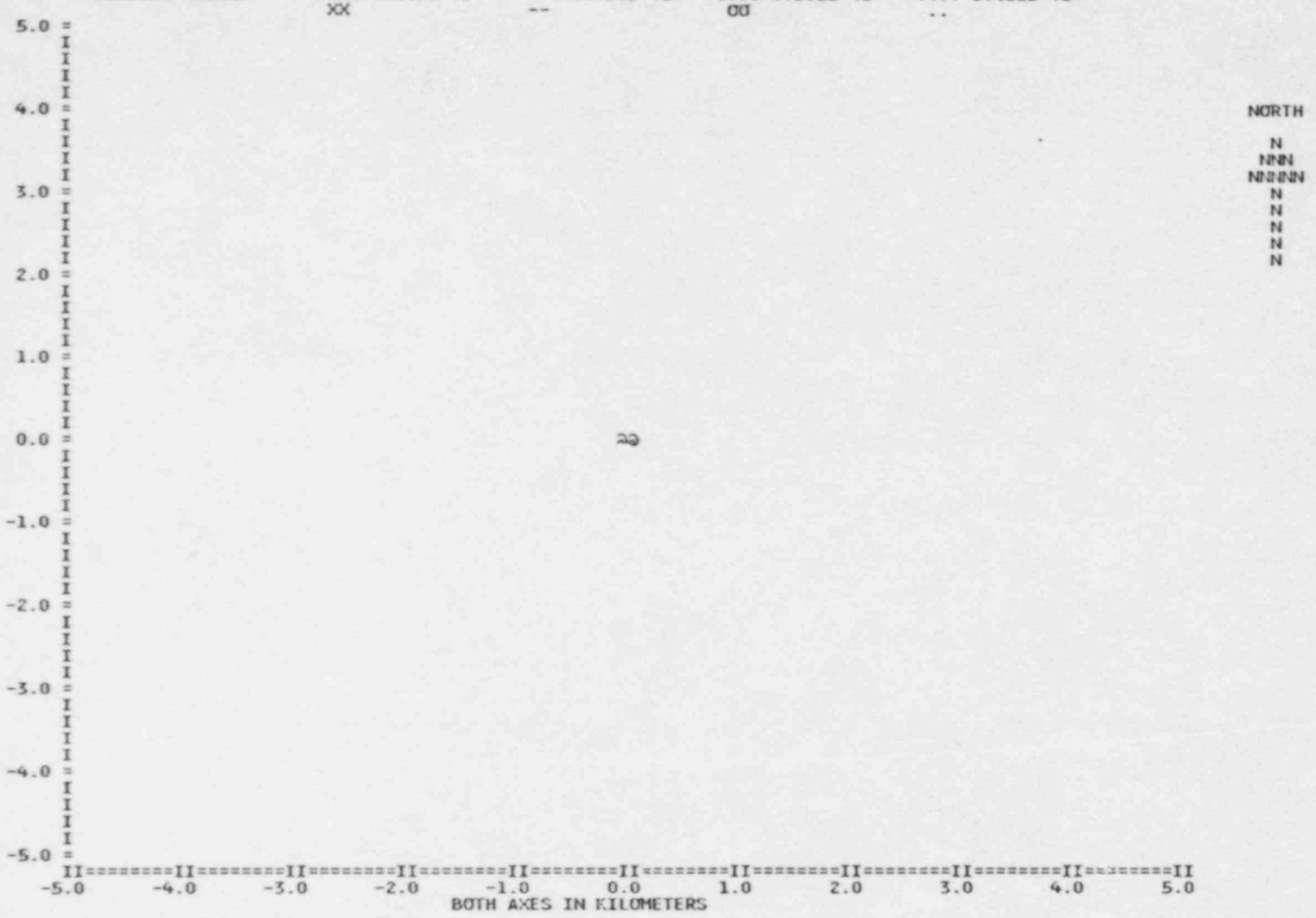


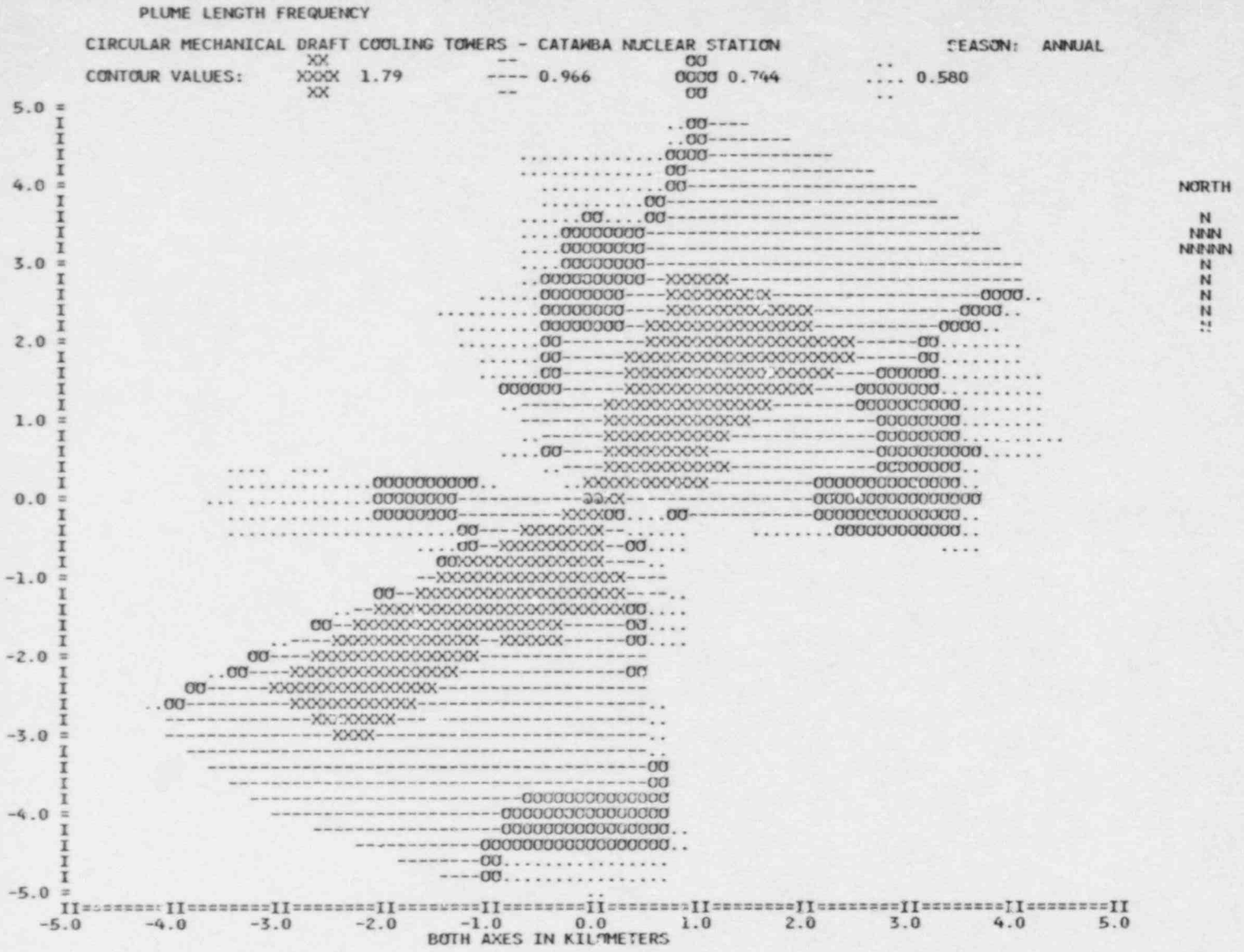

PLUME FOGGING FREQUENCY
CIRCULAR MECHANICAL DRAFT COOLING TOWERS - CATAWBA NUCLEAR STATION
SEASON: WINTER
CONTOUR VALUES: XX XXXX 0.100E-40
-- ---- 0.750E-41
00 0000 0.562E-41
.. .... 0.422E-41
NORTH
N
NNN
NNNNN
5.0
4.0
3.0
2.0
1.0
0.0
-1.0
-2.0
-3.0
-4.0
-5.0
-5.0 -4.0 -3.0 -2.0 -1.0 0.0 1.0 2.0 3.0 4.0 5.0
BOTH AXES IN KILOMETERS

PLUME RIME ICE FREQUENCY

CIRCULAR MECHANICAL DRAFT COOLING TOWERS - CATAWBA NUCLEAR STATION SEASON: WINTER

CONTOUR VALUES: XXXX 0.100E-40 ---- 0.750E-41 OOOO 0.562E-41 .... 0.422E-41

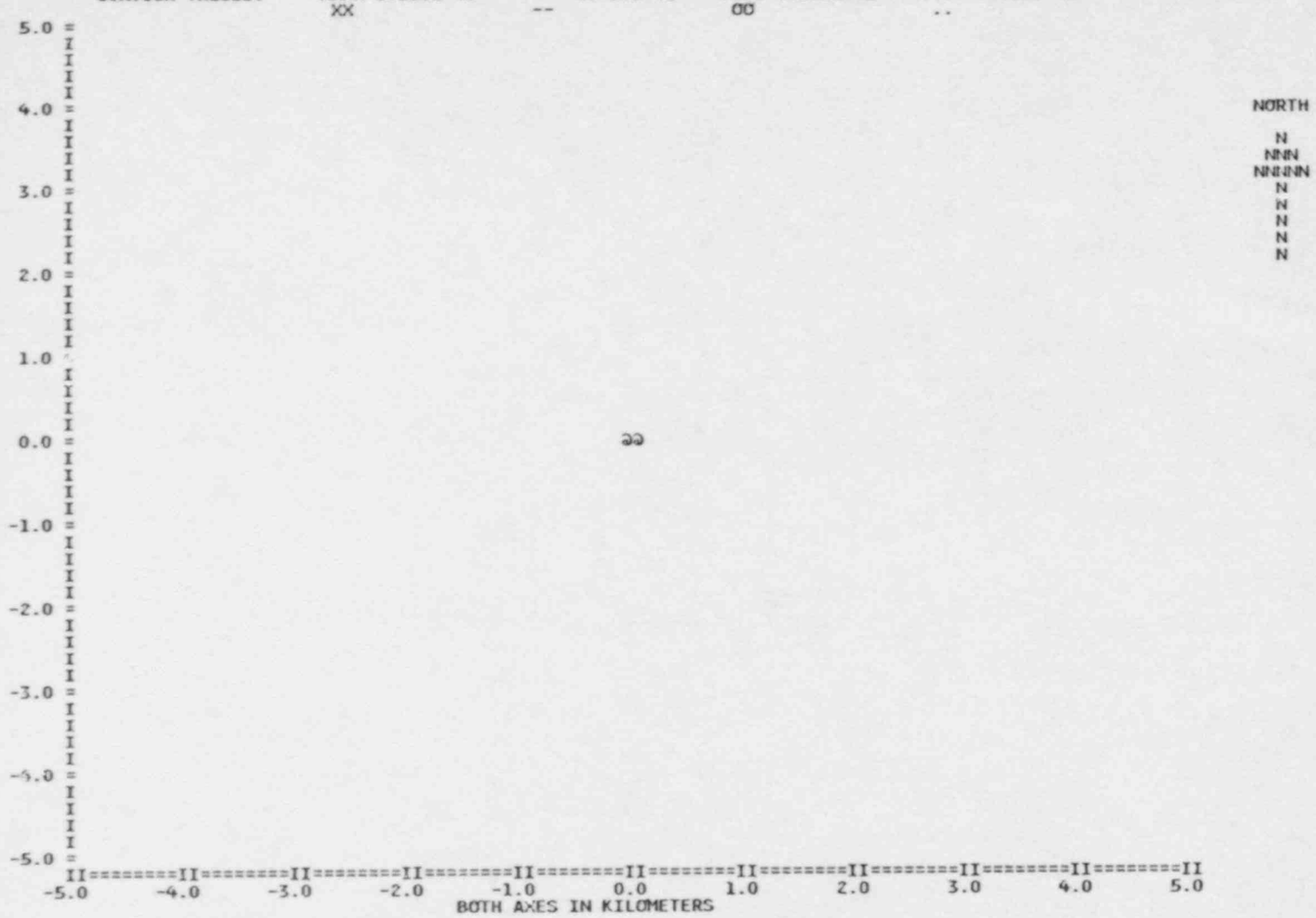


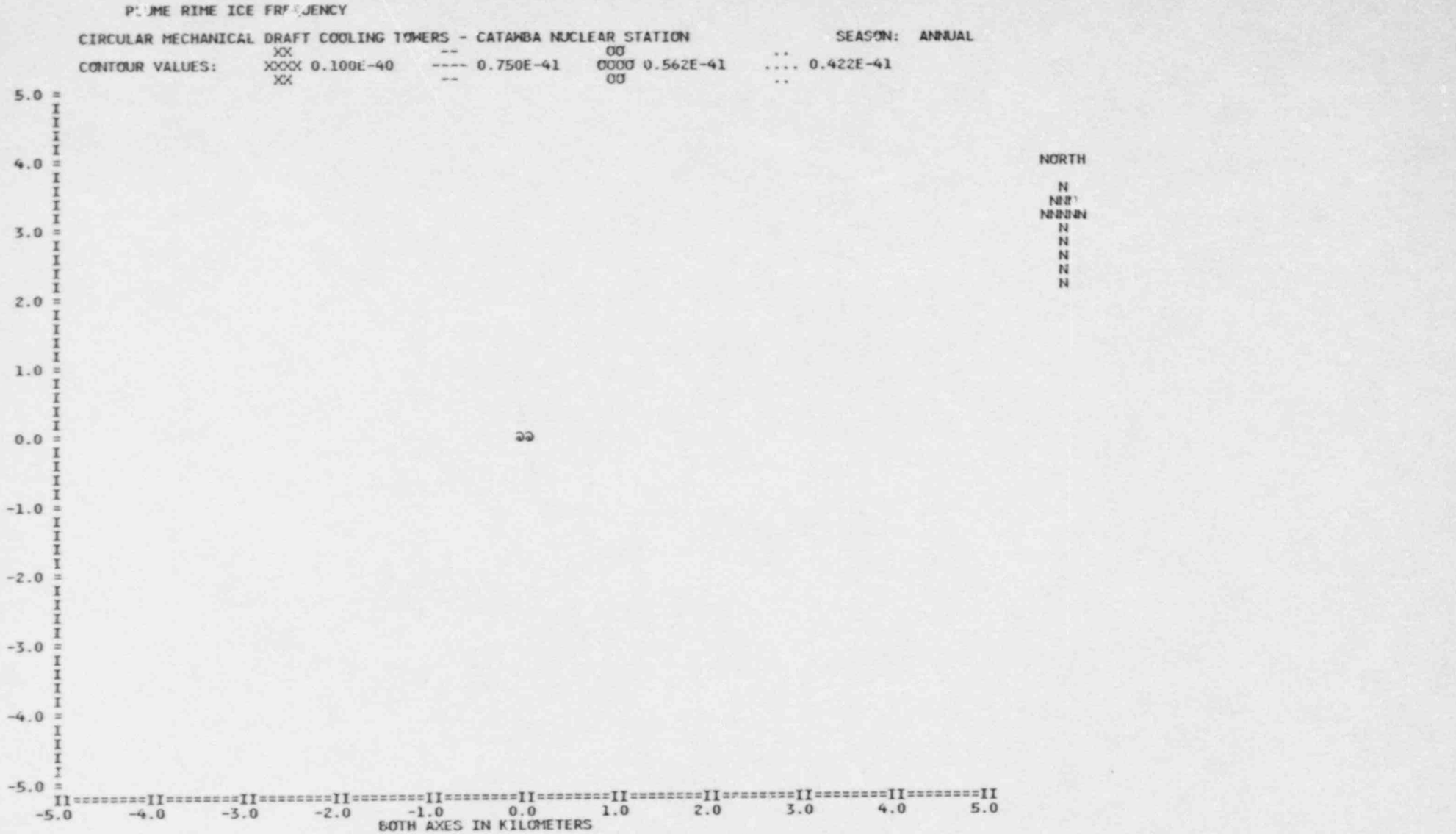

PLUME LENGTH FREQUENCY
CIRCULAR MECHANICAL DRAFT COOLING TOWERS - CATAWBA NUCLEAR STATION
SEASON: ANNUAL
CONTOUR VALUES: XXXX 1.79 ---- 0.966 0000 0.744 .... 0.580
NORTH
5.0
4.0
3.0
2.0
1.0
0.0
-1.0
-2.0
-3.0
-4.0
-5.0
-5.0 -4.0 -3.0 -2.0 -1.0 0.0 1.0 2.0 3.0 4.0 5.0
BOTH AXES IN KILOMETERS

PLUME FOGGING FREQUENCY

CIRCULAR MECHANICAL DRAFT COOLING TOWERS - CATAWBA NUCLEAR STATION SEASON: ANNUAL

CONTOUR VALUES: XXXX 0.100E-40 ---- 0.750E-41 0000 0.562E-41 .... 0.422E-41




PLUME RIME ICE FREQUENCY
CIRCULAR MECHANICAL DRAFT COOLING TOWERS - CATAWBA NUCLEAR STATION
SEASON: ANNUAL
CONTOUR VALUES: XXXX 0.100E-40 ---- 0.750E-41 0000 0.562E-41 .... 0.422E-41
NORTH
5.0
4.0
3.0
2.0
1.0
0.0
-1.0
-2.0
-3.0
-4.0
-5.0
-5.0 -4.0 -3.0 -2.0 -1.0 0.0 1.0 2.0 3.0 4.0 5.0
BOTH AXES IN KILOMETERS