

Int EP 29

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I-EP-29 5/7/84

50-413/414 OL

H B Tucker

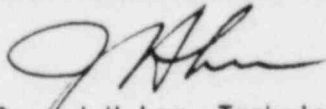
Attention: R M Glover ✓

Re: Catawba Nuclear Station
Emergency Evacuation Time Estimate
Carowinds Evacuation
File: CN1464.00

For your information we have attached a copy of a memo from P R C Voorhees to John Lee dated 3/9/83 regarding the above referenced subject.

If you have any questions or comments please contact John H Lee at (704)373-8184.

S B Hager, Chief Engineer
Civil-Environmental Division



By: J H Lee, Technical Specialist

JHL/cwr

Attachment

cc w/attach: W M McSwain
James Self
Wayne Broome
James L Carroll
Robert Phillips
Joseph F Myers
Tom Oliphant (Loss Prevention Operations Manager, Carowinds)
M E Bolch

NUCLEAR REGULATORY COMMISSION

Docket No. 50-413/414 Official Exh. No. Int. EP 29
In the matter of Duke, Catawba 1 & 2
Staff _____ IDENTIFIED ✓
Applicant _____ RECEIVED ✓
Intervenor ✓ REJECTED _____
Cont'g Off'r _____
Contractor _____ DATE 5/7/84
Other _____
Reporter M. Metzger

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Inter-Office
Correspondence

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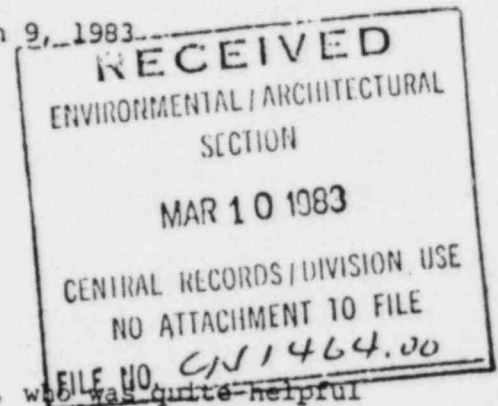
Planning Research Corporation

To John Lee, Duke Power

Date March 9, 1983

From Jerry Lutes, PRC Voorhees 92.

Subject Carowinds Evacuation



Today I spoke with Mr. Tom Oliphant, of Carowinds, who was quite helpful in clarifying our understanding of the Carowinds evacuation. This memo summarizes our conversation. Mr. Oliphant has agreed to review this memo and to advise me of any important errors.

With regard to the time needed to get people from the park to the parking lot, Mr. Oliphant estimates 2 to 2½ hours would be needed in a peak attendance situation. The procedure would be the same one followed for a normal closing, which takes between 20 minutes and one hour with a normal size crowd. This time estimate does not include time for giving free passes for a return visit. If the situation allows time for pass distribution, they would most likely be distributed on the exit roads as people are driving out, not at the park gate.

The main parking lot and adjacent grassy areas will hold about 5600 cars, the equivalent of four and two-thirds lane hours. Two lanes are normally used for exiting the lot, so about two hours and twenty minutes would be required to empty the lot when full.

Two additional lanes may be pressed into service to shorten this time. One leads from the main lot to Carowinds Boulevard, intersecting Carowinds Boulevard at a point about 0.2 mile northwest of the main entrance. The other lane is one of the two normally used as the main entrance. A hair-pin turn would be required to get onto it directly from the main parking lot. If one of these lanes were used as a third exit lane, the time to clear the parking lot would drop to about one hour and thirty-five minutes.

Of course, the time to clear the parking lot depends on the capacity of the road system outside the park to accommodate the two, three or four lanes of traffic leading from the main parking lot. It appears that the roads could only accommodate three lanes of traffic, so there would be no point in using a fourth lane to exit the parking lot. The three lanes away from the park would be as follows:

1. Northwest on Carowinds Boulevard to NC 49, then north on NC 49.
2. Southeast on Carowinds Boulevard to the ramp leading onto I-77 northbound.
3. Southeast on Carowinds Boulevard to SC 51, then east on Route 51 to US 521 near Pineville.

John Lee, Duke Power
Carowinds Evacuation
March 9, 1983
Page 2

In each case the Carowinds traffic would have to share the roads with a moderate amount of evacuation traffic from the rest of the EPZ.

Since the flow out of the parking lot will start almost as soon as the Carowinds staff begins directing people out of the park, it appears that the traffic congestion will have dissipated by the time the park itself is completely empty. (This assumes three lanes of traffic leaving the lot.) The expected time to evacuate the park is therefore about two hours. Another fifteen minutes may be required for the Carowinds staff to leave, and another fifteen minutes for the trip out of the EPZ. In total, then, the last person leaving Carowinds would cross the EPZ boundary about two and one-half hours after the evacuation order is received.

The foregoing estimate makes the important assumption that there will be firm traffic control on the roads near the park, so that there is minimal interference between the lanes of traffic. The evacuation time would be longer if, for example, cars leaving Carowinds Boulevard 0.2 mile northwest of the main entrance were permitted to turn left and cut across the other two lanes of exiting traffic to get to I-77.

Aside from the main parking lot, there are other parking areas to be evacuated. Exit from the Carowinds campground, the Ocean Island lot, and the Administration Building lot are all via Catawba Trace. Its one outbound lane can easily handle the cars from all these areas, which would not exceed 700 vehicles. However, Catawba Trace flows into Carowinds Boulevard at a point northwest of both exits from the main lot. Therefore, police intervention may be necessary to allow traffic from Catawba Trace to merge with traffic from the main lot headed to NC 49.

There is also a special parking lot for buses. The maximum number of buses at the park is about 300. The buses could leave via the main exit road, Catawba Trace, or the main entrance road.

In summary, it appears that evacuation of Carowinds on a peak day is a monumental task, requiring careful planning and good traffic control. But the time required for the evacuation is well under the three hours and twenty-five minutes required to evacuate the residential population.

GL:hc