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UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION DOCKETED  
USNRC

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of

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CAROLINA POWER & LIGHT COMPANY )  
and NORTH CAROLINA EASTERN )  
MUNICIPAL POWER AGENCY )  
)  
(Shearon Harris Nuclear Power )  
Plant) )

OFFICE OF SECRETARY  
DOCKET NUMBER 50-400 OL  
BRANCH

ATTORNEY GENERAL'S PROPOSED FINDINGS  
OF FACT AND CONCLUSIONS OF LAW on  
Eddleman Contention 57-C-3 (Night-  
Time Notification)

1. Eddleman Contention 57-C-3 (Night-time notification) as admitted provides:

The plan does not have provisions for notification at night, e.g. in the hours between 1 a.m. and 6 a.m. when most people living near the plant would normally be asleep. Nor does the plan assure that they would be timely awakened to take sheltering action, as e.g. on a summer night when many might have windows open or air conditioners on. The plan should provide automatic phone-dialing equipment to transmit an emergency message to all households in the EPZ for Harris, asking people to alert their phoneless neighbors.

2. 10 C.F.R. §50.47 (b) (5), the Nuclear Regulatory Commissions' (NRC) emergency planning regulations, provides in pertinent part:

\*\*\*means to provide early notification  
\*\*\*to the populace within the plume  
exposure pathway Emergency Planning Zone have  
been established.

10 C.F.R., Part 50, Appendix E, s. IV.D.3. further provides:

The design objective of the prompt public notification system shall be to have the capability to essentially complete the initial notification of the public within the plume exposure pathway EPZ within about 15 minutes.

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3. To fulfill these requirements, the Applicant has relied upon the numerical design criteria for fixed siren systems set forth in NUREG-0654, discussed in greater detail in FEMA 43. NUREG-0654 and FEMA 43 basically provide that the design of an adequate siren system should be 10 dB above average daytime ambient background levels; or a minimum of 60 dB.

4. The Federal Emergency Management Agency (FEMA) conducted a review of Applicant's siren system against NUREG-0654 and FEMA 43 numerical criteria and concluded that with the addition of six sirens, Applicants' alarm system conservatively meets the NRC/FEMA design criteria, which is based on daytime ambient background levels.

5. Both Applicants and FEMA have conducted elaborate mathematical estimates of the sound levels expected by use of Applicants' siren system.

6. Dr. Reada Bassiouni, an acoustical consultant under contract to Applicant, challenged the awakening curves on which the FEMA analysis relies.

7. No party to this docket has actually conducted a controlled field test with follow-up survey to determine actual performance of the siren system.

8. Dr. Reada Bassiouni's statement of November 5, 1985, made informally to the Board and assembled parties via telephone hookup, was made part of the official record by Board ruling of December 4, 1985. Dr. Bassiouni noted that:

a. Although CP&L has fully met the federal requirements of NUREG 0654 and FEMA 43 for the alert and notification system, the nighttime notification of Contention 57-C-3 is not addressed in the federal guidelines.

b. Reliance on an informal alerting system -- a component of the Applicant's plan -- is an inferior safety standard.

c. A better alternative than "informal alerting" is to design a siren system with nighttime alerting as a target.

9. The FEMA 43 criteria give no consideration to factors pertinent to nighttime notification: specifically, to the fact that for a sleeping person in air-conditioned house with closed windows, the probability of arousal from sleep with a siren sound level of 60 dB is essentially zero. With windows open, the probability only increases by an incremental 7-8%. (Tr 9650)

10. Testimony indicated that even to achieve a 50% probability of arousal from sleep of an individual in a house with the windows closed required outdoor sound levels of 90-99 dB (Tr 9927).

11. For the Harris summer scenario -- assuming 36% of the homes in the EPZ with windows open -- arousal is estimated at approximately 70%. Assuming, arguendo, the accuracy of this estimate, the balance of the "prompt notification system" described in 10 CFR 50.47 (b) (5) would of necessity consist of ancillary notification by emergency vehicles and by "informal notification," or the "Aunt Minnie phenomenon."

12. The capability of either or both of these activities to supplement the sirens and "...essentially complete the initial notification of the public within the plume exposure pathway EPZ within about 15 minutes" (10 C.F.R. Part 50, Appendix E, IV D.3) appears highly suspect, particularly in a nighttime situation. It is clear that the reliability, effectiveness and speed with which these siren-alternatives would operate are unknown, given the fact that there have been no actual field-tests.

13. As this panel of the Atomic Safety and Licensing Board has previously indicated to the Nuclear Regulatory Commission on November 19, 1985, "...should any deficiencies in nighttime notification emerge from the Shearon Harris record, we could fashion effective measures to deal with them on a site-specific basis."

14. That the Applicant has not offered any evidence to suggest that even if there does exist some natural phenomena of informal/indirect notification whereby people are drawn into groups seeking to engage in confirmatory communication as is posited by the Applicant's witness Dr. Mileti, that

- A) Residents during the night will respond to emergency instructions to awaken neighbors in darkened houses in order to confirm from those sleeping neighbors that there is in fact an emergency.
- B) Residents awakened during the night and seeking to protect the members of their immediate family in the face of a serious nuclear emergency will refrain from immediately leaving the area of emergency in order to conduct a random survey of near and remote

darkened neighbors' houses with an intention to determine if their neighbors are either (1) asleep in darkened houses or (2) not asleep and away from their residences for whatever reasons, including possible early flight because of the emergency.

- C) Time spent by residents during the night arousing neighbors will not detrimentally effect the health, welfare, and safety of those residents who are already at risk.
- D) That during the night this phenomena of indirect and informal notification will be more than a statistically unreliable and unsatisfactory substitution of neighbors calling neighbor for the much more effective mechanism of direct and immediate notification by tone alert radio.
- E) That during the night this phenomena of indirect and informal notification will not encourage the spread of confusing and conflicting misinformation about the true nature of the emergency and the appropriate protective steps to be taken by residents as compared to direct and immediate instructions given by qualified and knowledgeable emergency personnel over tone alert radios.

15. The concerns about the deficiencies in the siren system addressed by Dr. Bassiouni in paragraph 8 above have not been directly or adequately addressed by the testimony offered at the hearing held to address these matters on March 4th and 5th in Raleigh, North Carolina.

16. There will be a higher percentage of immediate notification of a nuclear emergency alert to people living within the Shearon Harris Nuclear Plant Emergency Planning Zone to the extent that Applicant maintains an effective emergency alert system simultaneously relying on sirens and tone alert radios instead of having exclusive reliance on sirens. But, that under the Applicant's proposal this higher percentage of notification will only apply to the interior 5 mile portion of the EPZ because of the Applicant's intention to limit the distribution of radios to that interior zone.

17. That at night, the immediate emergency notification of residents is a very desirable circumstance in light of the fact that no party or persons can guarantee an absence of delays in declaring a nuclear emergency at night.

18. That the Applicant has failed to establish that under nighttime conditions the immediate notification of residents within 15 minutes is unnecessary to protect the health and safety of residents sleeping throughout the EPZ.

19. That at least 1000 more households within the outer five mile ring of the Emergency Planning Zone will be likely to receive immediate notification of a nuclear emergency if tone alert radios are supplied to all households within the EPZ.

20. That the health and safety of residents within the EPZ requires that the Applicant extend its proposed tone alert radio notification program to all residents of the EPZ on terms substantially similar to the program proposed by the Applicant for the interior five mile zone.

21. That a vigorous continuing program of public education must be conducted by the Applicant on the use and importance of the tone alert radios which program shall include

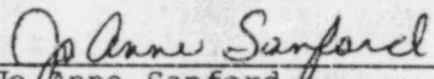
- A) The placement of instructional stickers on the radios.
- B) Creation of a well-designed, informative, interesting, and easy to read operational instructions pamphlet on the use of tone alert radios for emergency notification.
- C) At least annual distributions of the tone alert radio operational instruction pamphlets.
- D) Periodic distribution of the Applicant's Newsletter to all residents of the Emergency Planning Zone with a report on or information about the tone alert radio program at least three times per year.
- E) Annual letters distributed to all residents with free replacement batteries and instructions on how to test and maintain the radios.

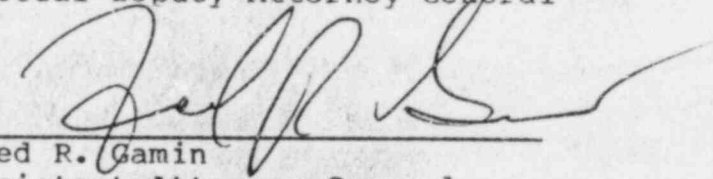
- F) Appropriate educational programs at all area schools that contain any significant number of children who live in the EPZ. Such programs shall be conducted frequently enough to inform without needless alarming such children. The frequency and content of such programs as well as the grades of students attending such programs shall be developed in consultation with school officials and sociological or psychological resource personnel.
- G) At least, annual general testing and more frequent surveying of the radios with corrective action and early retesting being conducted if the percentage of radio operability falls below 87%.

22. We do find deficiencies in nighttime notification and hereby conclude that neither Applicant's modified plan nor the FEMA 43 criteria give proper assurance of the achievement of a satisfactory level of nighttime alerting.

Respectfully submitted this 19 th day of March, 1986.

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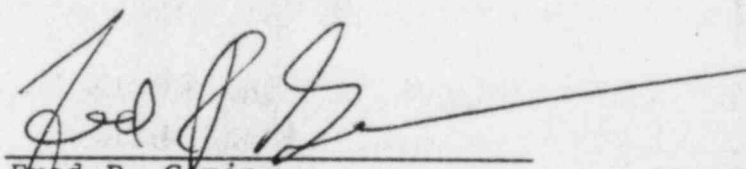
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CERTIFICATE OF SERVICE

I hereby certify that copies of North Carolina's Proposed Findings of Fact and Conclusions of Law On Eddleman Contention 57-C-3 (Night-time Notification) were served this 19th day of March, 1986, by hand delivery to those identified with an asterisk, and by deposit in the U.S. Mail, first class, postage prepaid, to all others listed on the attached Service List.

  
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