September 1, 1983

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of	)	
	)	
CAROLINA POWER & LIGHT COMPANY	)	
AND NORTH CAROLINA EASTERN	)	Docket Nos. 50-400 OL
MUNICIPAL POWER AGENCY	)	50-401 OL
	)	
(Shearon Harris Nuclear Power	)	
Plant, Units 1 and 2)	)	

APPLICANTS' STATEMENT OF MATERIAL FACTS AS TO WHICH THERE IS NO GENUINE ISSUE TO BE HEARD ON EDDLEMAN CONTENTION 80

Pursuant to 10 C.F.R. § 2.749(a), Applicants state, in support of their Motion for Summary Disposition of Eddleman Contention 80 in this proceeding, that there is no genuine issue to be heard with respect to the following material facts:

1. Eddleman Contention 80 alleges that Applicants' mixing and dispersion models are deficient in that they assume more complete mixing and dispersion than will actually take place and take insufficient account of rainout and thus do not assure compliance with 10 C.F.R. § 20.106, the 25 rem whole body and 300 rem thyroid exposure limits for an accident (contained in 10 C.F.R. § 100.11) and the below 10^{-3} of these values limit for normal operation.

2. Modeling is an approved tool used to provide an estimate of the dispersion of the effluent released and its concentration at various locations. Exhibit B attached to McFeaters Affidavit, at 3 (hereinafter "Exhibit B").

3. Applicants use a Gaussian dispersion model to estimate atmospheric dispersion of the plume of radioactivity which could be released from SHNPP. Exhibit B at 17.

4. The Gaussian dispersion model is an approved methodology adopted in NRC Regulatory Guides 1.4, 1.24, 1.25, 1.77, 1.09, 1.111 and 1.145. Exhibit B at 4-5.

5. The NRC has developed computer codes based on the Gaussian dispersion model for use by the staff in evaluating routine and accidental releases from commercial nuclear power plants. NUREG/CR-2919; NUREG/CR-2858.

6. Applicants do not account for rainout in their dispersion model. Exhibit B at 26.

7. Rainout is wet deposition due to precipitation in a cloud. Exhibit B at 14; see Eddleman Contention 80.

8. Rainout decreases the concentration of radioactive releases in the atmosphere. Exhibit B at 26-27.

9. When radioactive materials are scavenged from the atmosphere into the soil and water, or "rained out," the environmental and time barriers to uptake into food pathways result in doses to individuals smaller than those that could result from direct inhalation of radionuclides. Lei Affidavit at Paragraph 4.

10. The omission of rainout from the dispersion model increases the conservatism of the model. Exhibit B at 27.

11. Mixing of the released material increases in the wake of a building. Exhibit B at 11-12.

12. The Gaussian dispersion model contains a factor to account for this increased mixing. Exhibit B at 11-12.

13. Due to the conservatism of the factor used to simulate building wake effect, the generic form of the Gaussian model predicts concentrations in excess of those actually observed in the wake of the building. Exhibit B at 13.

14. At Shearon Harris Nuclear Power Plant (SHNPP) the building wake adjustment factor is minimized by using the smallest cross-sectional area of a building in estimating wake effect. Exhibit B at 24. This approach adds additional conservatism to the conservative wake adjustment factor normally incorporated into the Gaussian dispersion model.

15. Stable atmospheric conditions lead to less mixing and dispersion and higher concentrations of pollutants. Exhibit B at 19-25.

16. In applying the Gaussian model to SHNPP, Applicants assume an atmospheric stability "G." Exhibit B at 20.

17. "G" stability represents extremely stable conditions and has been adopted by the NRC to ensure conservatism in dispersion modeling. Exhibit B at 20.

18. Applicants assume wind persistence in one direction at .75 mph (.333 m/sec) in applying the Gaussian dispersion model to SHNPP. Exhibit B at 19.

19. The assumptions of wind persistence in one direction, low wind speed and extremely stable atmospheric

conditions add additional conservatism to the Gaussian model. Exhibit B at 22.

20. In applying the Gaussian dispersion model, Applicants assume that releases occur at ground level. This assumption is a "worst case" analysis because relative concentration will be highest at ground level. Exhibit B at 18-19.

21. Applicants' releases could actually occur at more than 150 feet above ground. By assuming ground level release, Applicants have incorporated additional conservatism into their model. Exhibit B at 18.

22. Applicants' model complies with the requirements set forth in 10 C.F.R. Part 20.106 and with the guidelines contained in Regulatory Guides 1.111, 1.4 and 1.145.

Dated: September 1, 1983

Respectfully submitted,

Pamela H. Anderson

Thomas A. Baxter, P.C.
John H. O'Neill, Jr.
Pamela H. Anderson
SHAW, PITTMAN, POTTS & TROWBRIDGE
1800 M Street, N.W.
Washington, D.C. 20036
(202) 822-1000

Richard E. Jones
Samantha Francis Flynn
CAROLINA POWER & LIGHT COMPANY
P.O. Box 1551
Raleigh, North Carolina 27602
(919) 836-6517

Counsel for Applicants