October 5, 1983

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

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

APPLICANTS' STATEMENT OF MATERIAL FACTS ON EDDLEMAN CONTENTION 29/30 AS TO WHICH THERE IS NO GENUINE ISSUE TO BE HEARD (APPENDIX I COMPLIANCE)

Pursuant to 10 C.F.R. § 2.749(a), Applicants state, in support of their Motion for Summary Disposition of Eddleman Contention 29/30 (Appendix I Compliance) in this proceeding, that there is no genuine issue to be heard with respect to the following material facts:

1. Applicants have not underestimated radioiodine releases during normal operations from the Harris Plant.

2. Applicants have demonstrated that normal radioiodine releases will not exceed Appendix I limitations.

3. Appendix I to 10 C.F.R. Part 50 provides numerical guides for design objectives and limiting conditions of operation to assist applicants for an operating license in meeting the requirement that radioactive material and effluents

released to unrestricted areas be kept as low as reasonably achievable.

4. Compliance with Appendix I involves a demonstration that the plant design provides reasonable assurances that the liquid and gaseous effluents released will be below levels resulting in offsite exposures in excess of Appendix I design objectives.

5. The methodology by which this demonstration of compliance with Appendix I is performed has been standardized and has been approved by the Advisory Committee on Reactor Safeguards. Regulatory Guides 1.109, 1.111, 1.112 and 1.113.

6. The NRC has an ongoing data collection and assessment program to determine whether changes to the standardized methodology for Appendix I compliance are warranted.

7. The methodology for performing Appendix I calculations is based on historical nuclear plant operating experience and takes into account the full range of normal operating experiences, including anticipated operational occurrences.

8. Applicants performed the Appendix I calculations using the NRC approved standardized methodology. The results of Applicants' calculations are set forth in the Harris Environmental Report ("ER") at § 5.2.

9. The NRC Staff performed the Appendix I calculations using its standardized methodology. The NRC Staff's independent

calculations are reported in the Draft Environmental Impact Statement ("DES") at § 5.9.3.2 and Appendix D.

10. With respect to radioiodine releases, Applicants calculated the annual atmospheric release of I-131 would be 0.09 curies/year. ER, Table 5.2.5-2.

11. The NRC Staff calculated an annual atmospheric release of I-131 of 0.16 curies/year. DES, Appendix D, Table D-8.

12. The design objective for I-131 release, as set forth in the Annex to Appendix I, is 2 curies/year.

13. Both Applicants and the NRC Staff calculated the I-131 release from the Harris Plant to be more than an order of magnitude less than the design objective.

14. Based on actual operating experience of nuclear power plants, it has been demonstrated that the predicted releases of radioiodines, calculated using the standardized methodology, are on the average many times greater than actual releases.

15. The first step in Appendix I compliance is to calculate the Source Term, or the radionuclides -- including radioiodines -- estimated released in liquid and gaseous effluents during normal operations.

16. The Source Term calculations consist of a quantitative evaluation of all radionuclides which are potentially available for release to the environment during the full range of normal plant operations, including anticipated operational occurrences.

Anticipated operational occurrences would include leakages and malfunctions which, based on industry experience, can be expected in the course of normal operations.

17. Historical and empirical data form the basis for the standardized Source Term equation incorporated in a computer program known as the Gaseous and Liquid Effluent Code ("Gale Code"). See NUREG-0017.

18. The Gale Code Source Term takes into account plant specific design features, resulting in an individualized estimate of radionuclide releases.

19. Applicants' calculation of the Source Term was made utilizing the methodology contained in NUREG-0017 and Regulatory Guide 1.112.

20. The assumptions regarding the failed fuel percentage for the Source Term calculation are based upon standard primary coolant concentration values recommended by the NRC. Recent operational data indicate that this average value of primary coolant concentrations is somewhat conservative.

21. Because of differences in fuel design, between the older Robinson, the Brunswick BWR and Harris, and because of improvements in fuel fabrication and management methods and water chemistry control, the failed fuel history of Robinson and Brunswick bears no relevance to calculation of the Harris Source Term.

22. The radioiodine Source Term takes into account radioiodines resulting from direct fissioning of uranium in the core and from the decay of primary fission products. The only other theoretical contribution to radioiodines in the environment would arise from decay of tellurium -- a fission product -- subsequent to release. The releases of tellurium are so small and its half-life is so short, that its decay subsequent to release does not contribute meaningfully to the radioiodine Source Term.

23. Xenon, a noble gas, does not decay into radioiodine; rather iodines decay into xenon.

24. Applicants' Source Term for radioiodine and gaseous effluents includes an assumed 90 percent reduction factor due to the Harris Filtration System.

25. The filtration Reduction Factor of 90 percent was derived from historical data contained in NUREG-0017 and underestimates the actual operational efficiencies of such filtration systems, which exceed 99 percent.

26. Actual in-place usage time of high-efficiency, particulate air ("HEPA") filters will be much less than their life expectancy under normal environmental operating conditions.

27. A quality assurance program will be adopted to ensure filters are changed on schedule and are not subjected to premature wear.

28. The only gaskets and seals that are present in the filter units, which could be subject to deterioration due to thermal,

radiation and humidity conditions, are part of the prefilters and HEPA filters where particulate matter is trapped. The charcoal adsorber section, where the gaseous radioiodines are trapped, is of all welded, gasket-less construction.

29. The silicone, neoprene and urethane used for gaskets and seals in the Harris filtration system last many times longer than the filter replacement interval of two years under normal operating conditions.

30. Studies cited by Mr. Eddleman which allege gasket and seal failures due to distortion, embrittlement and cracking resulting from radiation exposures are inappropriate for comparison to Applicants' filtration system seals because (1) they are based on materials which are dissimilar to those utilized by Applicants; (2) the material breakdown was the result of radiation exposures which resulted in integrated doses far in excess of those which will be experienced by Applicants' filtration systems; and (3) the studies simply do not reach the conclusions asserted by Mr. Eddleman.

31. Applicants have committed to inspections that will detect degradation of gaskets and seals as mandated by Regulatory Guide 1.140. FSAR § 1.8.

Applicants state that there is no genuine issue to be heard with respect to the following facts and, futhermore, that such facts are not material to Contention 29/30:

1. Applicants' atmospheric dispersion calculations were performed pursuant to Regulatory Guide 1.111.

2. The atmospheric dispersion models in Regulatory Guide 1.111 take into account those factors which could result in incomplete mixing and predict values for plume concentrations that are conservatively high.

3. Applicants' atmospheric dispersion model utilized site specific meteorological data obtained at the Harris site meteorological monitoring station during the period from January 1976 through December 1978.

4. The three-year duration of atmospheric data collection is specified in Regulatory Guide 1.70. These data were compared with historical records from various reporting services and with data collected at the Harris on-site monitoring system from January 1979 to date. All information confirmed the representativeness of the three years of data used in the atmospheric dispersion model.

5. Wet deposition of radionuclides out of a plume by either "rainout" or "washout" is appropriate to take into account at a site with a distinct rainy season which corresponds to the grazing season. Such is not the case at the Harris site.

6. Otherwise, wet deposition has been found to be of little significance in considering dispersion and deposition of routine emissions over the period of a year because of its infrequent and random occurrence.

7. Applicants' atmospheric dispersion model contains a building wake factor that uses the smallest cross-sectional area of the reactor building, thus substantially lessening the importance of the predicted wake effect. As a result, actual concentrations that might occur are significantly over-predicted, contributing to the conservatism of Applicants' model.

8. Applicants have calculated the aquatic dispersion of released radioiodines in the Harris Reservoir according to equation 43 of Regulatory Guide 1.113.

9. The chemical interaction of radioiodines with other materials would decrease the radioiodine concentration level within the Harris Reservoir due to settling out or sedimentation of radioiodines chemically combined with other materials in the water.

10. Stratification, if it occurred within the Reservoir, would not have an effect on calculated concentrations of radioiodines. The effect of a subsurface warm water discharge point into a stratified reservoir would result in disruption of the integrity of the temperature layers and an increase in localized mixing activity, reducing the localized concentration of radioiodines.

11. As stated in Regulatory Guide 1.113, the steady-state, completely-mixed model is most suitable for long-lived radionuclides.

12. Short-lived radionuclides do not lend themselves to an accurate prediction in modeling of the distribution of their activity because of their rapid decay; the total amount of activity due to short-lived isotopes is modeled.

13. Applicants' calculation of the dose to the public from releases of radioiodine from the Harris Plant is in strict conformance with the methodology contained in Regulatory Guide 1.109.

14. Wet deposition of radionuclides contributes an insignificant amount to total concentration of radioactivity on the ground over the course of a year.

15. Regulatory Guide 1.109 establishes the general rule that 90 percent of the exposure due to releases be accounted for.

16. The contribution of wet deposition to radioiodine concentrations is negligible and Applicants properly do not account for it.

17. The so-called "Heidelberg Report" or NRC Translation 520 has been thoroughly discredited by the scientific community.

18. The transfer factor used by Applicants is found in Regulatory Guide 1.109 and is based on extensive scientific surveys and studies.

19. Applicants and the NRC Staff have considered all significant pathways in performing dose calculations.

20. Applicants have used a conservative estimate of dose calculation due to consumption of green leafy vegetables.

21. All gaseous effluent release points are monitored either directly or indirectly by the Harris Plant Monitoring System.

22. The Harris Plant Monitoring System includes monitors designed to assess radioiodine releases from the Plant.

23. Intervenor Eddleman's reliance on certain studies of materials degradation due to radiation exposures does not support his allegations that the Harris Plant Monitoring Systems will not monitor all radioiodines because of seal and gasket failure. The cited reports refer to different materials which are exposed to a much harsher environment.

24. The Harris Plant Monitoring System is designed to operate in a 95 percent humidity environment.

25. All significant gaseous effluent release points are monitored directly in compliance with NUREG-0800; releases from insignificant gaseous effluent release points are accounted for through indirect measurement techniques and routine sampling. An accurate measurement of all site releases can be made.

Respectfully submitted,

Thomas A. Baxter, P.C.
John H. O'Neill, Jr.
Jeffrey J.A. Gibbs
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