

July 8, 1983

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of  
DUKE POWER COMPANY, ET AL.  
(Catawba Nuclear Station,  
Units 1 and 2)

}  
Docket Nos. 50-413  
50-414

NRC STAFF MOTION FOR SUMMARY DISPOSITION  
OF PALMETTO CONTENTION 16

I. INTRODUCTION

The NRC Staff moves the Licensing Board, pursuant to 10 CFR Section 2.749 of the Commission's Rules of Practice, for summary disposition in its favor of Palmetto Alliance Contention 16. Palmetto Alliance Contention 16 states:

Applicants have not demonstrated their ability to safely store irradiated fuel assemblies from other Duke nuclear facilities so as to provide reasonable assurance that those activities do not endanger the health and safety of the public.

As grounds for its motion, the Staff asserts that the attached affidavit of Amarjit Singh and Kahtan N. Jabbour, together with other papers filed in this proceeding, demonstrate that there is no genuine issue of material fact to be heard with respect to Palmetto Alliance Contention 16 and that the Staff is entitled to a decision in its favor as a matter of law.

DESIGNATED ORIGINAL

Certified By DSJ

## II. DISCUSSION

### A. Commission Standards for Summary Disposition

The Commission's Rules of Practice provide that summary disposition of any matter involved in an operating license proceeding shall be granted if the moving papers, together with the other papers filed in the proceeding, show that there is no genuine issue as to any material fact and that the moving party is entitled to a decision as a matter of law. 10 CFR 2.749(d). The use of summary disposition has been encouraged by the Commission and the Appeal Board to avoid unnecessary hearings on contentions for which an intervenor has failed to establish the existence of a genuine issue of material fact. E.g., Statement of Policy on Conduct of Licensing Proceedings, CLI-81-8, 13 NRC 452, 457 (1981); Houston Lighting and Power Company (Allens Creek Nuclear Generating Station, Unit 1), ALAB-590, 11 NRC 542, 550-551 (1980); and Northern States Power Company (Prairie Island Nuclear Generating Plant, Units 1 and 2), ALAB-107, 6 AEC 188, 194 (1973); aff'd, CLI-73-12, 6 AEC 241, 242 (1973); aff'd sub nom, BPI v. AEC, 502 F.2d 424 (D.C. Cir. 1974). A material fact is one that may affect the outcome of the litigation. Mutual Fund Investors Inc. v. Putnam Management Co., 553 F.2d 620, 624 (9th Cir. 1977).

When a motion for summary disposition is made and supported by affidavit, a party opposing the motion may not rest upon the mere allegations or denials of his answer but must set forth specific facts such as would be admissible in evidence that show the existence of a genuine issue of material fact. 10 CFR 2.749(b). All material facts

set forth in the statement of material facts required to be served by the moving party will be deemed to be admitted unless controverted by the statement of material facts required to be served by the opposing party. 10 CFR 2.749(a). Any answers supporting or opposing a motion for summary disposition must be served within twenty (20) days after service of the motion. Id. If no answer properly showing the existence of a genuine issue of material fact is filed, the decision sought by the moving party, if properly supported, shall be rendered. 10 CFR 2.749(b).

B. The Scope of Contention 16 is Limited to Safety Issues Peculiarly Raised by the Proposal to Store Oconee and McGuire Spent Fuel at Catawba

It appears from interrogatory responses of Palmetto Alliance (see, "Palmetto Alliance's Supplementary Responses to Applicants' and Staffs' [sic] Interrogatories Regarding Contentions ... 16 ...," dated April 19, 1983, at 52) that Palmetto believes "external threats to the facility [such] as aircraft crashes" fall within the scope of Contention 16. However, as the Licensing Board has ruled, "[t]he portion of this contention which relates to the storage of irradiated fuel assemblies from other Duke facilities at Catawba is admitted." Memorandum and Order, December 1, 1982, at 8. There is nothing in the language of the contention or the Board's rulings thereon<sup>1/</sup> to suggest that Contention 16 extends to

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<sup>1/</sup> See also Memorandum and Order, June 20, 1983, at 14. There the Board noted that Contention 16 addresses the health and safety consequences of storage of spent fuel from other Duke nuclear facilities at Catawba.

matters, such as external threats, which have no peculiar bearing on the safety of spent fuel storage, much less the storage of Oconee and McGuire fuel at Catawba, are within the scope of Contention 16. Simply stated, any external threats, such as from aircraft, to the Catawba spent fuel pool do not result as a consequence of storing spent fuel from Oconee and McGuire at Catawba, nor has any basis been offered by Palmetto Alliance for raising this matter with particular reference to the spent fuel storage facility.

Moreover, in rejecting DES Contention 16, in its December 1, 1982 Memorandum and Order, at 21, the Board's rationale assumes no contention on the subject of external threats from aircrashes had otherwise been proffered:

As the Applicants point out, aircraft hazards are discussed in some detail in the FSAR. See §§ 2.2.2.5 and 2.2.3.1.3. A contention with exactly the same factual allegations might have been based on the FSAR and proffered long ago. But this contention is clearly untimely now, and it is rejected.

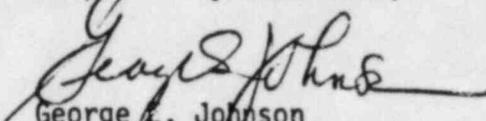
Thus, both common sense and the Board's rulings in this proceeding lead to the conclusion that only matters arising as a direct consequence of the proposal to store Oconee and McGuire spent fuel at Catawba are within the scope of Palmetto Contention 16, and that external threats, such as from aircraft, are clearly outside that scope. With Palmetto Contention 16 thus interpreted not to encompass a consideration of external threats, the attached affidavits, together with other papers filed in this proceeding, demonstrate that there is no genuine issue of material fact to be heard with respect to this contention.

#### III. CONCLUSION

There being no genuine issue as to any material fact and inasmuch as decision in favor of the Staff's position is required as a matter of

law, the Staff requests that Palmetto Alliance Contention 16 be dismissed.

Respectfully submitted,

  
George L. Johnson  
Counsel for NRC Staff

Dated at Bethesda, Maryland  
this 8th day of July, 1983

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STATEMENT OF MATERIAL FACTS AS TO WHICH  
THERE IS NO GENUINE ISSUE TO BE HEARD

1. Applicants have proposed to receive and store up to 300 spent fuel assemblies per year from the Oconee and McGuire facilities in the Catawba spent fuel storage facility (SFSF). Affidavit, ¶ 4.
2. Palmetto Alliance Contention 16 focuses on the ability of Applicants to safely receive and store such fuel "so as to provide reasonable assurance that those activities do not endanger the health and safety of the public." Affidavit, ¶ 3.
3. In order to evaluate the safety of Applicants' proposal, the Staff examined the three principal areas of interaction between the Oconee and McGuire spent fuel proposed to be stored and the SFSF at Catawba: (1) criticality; (2) the ability of the spent fuel pool cooling system to remove decay heat and maintain adequate levels of water; and (3) the ability of Applicants to move spent fuel casks into and out of the SFSF without causing damage either to the assemblies being moved or to assemblies in the spent fuel pool. The Staff also evaluated whether removal of spent fuel assemblies from the cask presented any safety concern. Affidavit, ¶ 6.

4. The SFSF is a seismic Class I structure designed to provide underwater storage for 1418 fuel assemblies. Affidavit, ¶ 7.

5. The Staff's acceptance criteria for the criticality aspects of fuel storage, based on GDC 62, is that the neutron multiplication factor shall be less than or equal to 0.95, including all uncertainties, under all conditions, throughout the life of the racks, in order to provide a sufficient margin to preclude criticality in fuel pools. Affidavit, ¶ 8.

6. A technical specification will be imposed limiting the neutron multiplication factor ( $K_{eff}$ ) in the Catawba spent fuel pool to 0.95. Affidavit ¶ 8.

7. Based upon comparisons with other facilities, the Staff estimated the  $K_{eff}$  of the pool full with 3.5 weight percent U-235 fresh fuel in unborated water (the most reactive condition) allowing for uncertainties, to be 0.88, which is below the acceptance criterion of 0.95. Affidavit, ¶ 9.

8. The dominant characteristic of Oconee and McGuire fuels with respect to evaluating their impact on criticality in the Catawba spent fuel pool is the U-235 enrichment. Affidavit, ¶ 9.

9. McGuire and Catawba fuel have the same enrichment -- 3.5 weight percent -- and Oconee has a lower enrichment; there are no significant differences among these three fuels with respect to criticality. Affidavit, ¶ 9.

10. Applicants performed an analysis which showed that criticality will remain below 0.95 (the Staff's acceptance criterion) for any configuration of fuel storage in the Catawba pool that would involve fuel from McGuire and Oconee. Affidavit, ¶ 9.

11. The design of the storage racks is adequate to maintain the margin to criticality in the unlikely event of accidental dropping of an assembly across the racks, and also precludes inadvertent placement of fuel in other than the designated positions. Affidavit, ¶ 9.

12. Based on the Staff's evaluation and Applicants' analysis, the Staff concludes that, in conformance with GDC G2, the storing of Ocone and McGuire spent fuel at Catawba does not adversely affect the Staff's estimates of the margin to criticality and that the margin to criticality is adequate. Affidavit, ¶ 9.

13. The spent fuel pool cooling system (SFPCS) is designed to remove the decay heat generated by the maximum number of spent fuel assemblies that are to be stored, plus a full core offload. Affidavit, ¶ 10.

14. The SFPCS consists of two fuel pool cooling trains, each with a fuel pool cooling pump and heat exchanger that are completely redundant. Affidavit, ¶ 10.

15. Under normal operating conditions with Catawba fuel only, a heat load of  $17.0 \times 10^6$  btu/hr is generated, and only one cooling train is required to maintain the pool water temperature at 125°F or less. Affidavit, ¶ 10.

16. For the "normal" operating condition for the SFSF it is assumed that the spent fuel pool contains one-third core with full irradiation and 7-day decay, one full core of open spaces, and the remainder of the pool filled with fully irradiated fuel from previous yearly refuelings. Affidavit, ¶ 10.

17. The maximum increase in heat load due to the proposed storage of non-Catawba fuel is estimated to be less than 2 percent. Affidavit, ¶ 10.

18. For the "normal" condition, this increase is accommodated by the SFPCS, which is designed to maintain a pool temperature of below 140°F with a heat load of  $20.6 \times 10^6$  Btu/hr. Affidavit, ¶ 10.

19. These pool water temperatures are within the Staff's acceptance criterion of 140°F for "normal" heat load conditions. Affidavit, ¶ 10.

20. The SFPCS is designed to maintain the pool water temperature below 150°F with two cooling trains operating, assuming "maximum" heat load generated by Catawba fuel only of  $39.0 \times 10^6$  btu/hr. Affidavit, ¶ 10.

21. For the "maximum" heat load condition, it is assumed that the spent fuel pool contains a full core discharge consisting of one-third core irradiated 11 days and decayed 7 days, one-third core irradiated two full cycles and decayed 7 days and one-third core fully irradiated and decayed 25 days, and the remainder of the pool filled with fuel from previous yearly refuelings. Affidavit, ¶ 10.

22. Since the maximum increase in heat load under the "maximum" operating condition when Oconee and McGuire fuel is stored in the SFSF is also less than 2%, the SFPCS, designed to maintain water temperature below 150°F with a heat load of  $42.7 \times 10^6$  Btu/hr, is adequate to accommodate the additional heat load. Affidavit, ¶ 10.

23. The anticipated pool water temperature with Oconee and McGuire fuel meets the Staff's acceptance criterion of 150°F for "maximum" heat load conditions. Affidavit, ¶ 10.

24. Assuming loss of both SFPCS cooling trains, there is sufficient time and makeup capability available to provide adequate shielding and water volumes in the fuel pool. Affidavit, ¶ 11.

25. Applicants' analysis of the consequences of failure of both cooling trains, assuming no makeup water is supplied and the maximum decay heat production rate, showed that it will take 72 hours before the fuel assemblies would be uncovered; this affords ample time under any foreseeable conditions to initiate makeup water replacement to maintain the water level in the pool. Affidavit, ¶ 11.

26. The spent fuel pool is equipped with water level and temperature alarms which are indicated in the control room. Affidavit, ¶ 12.

27. In case the pool water level falls below normal, makeup water is normally provided from either the reactor makeup storage tank or the refueling water storage tank; if neither of these is available, it may be supplied from either train of the Nuclear Service Water System. Affidavit, ¶ 12.

28. Since there are numerous sources of makeup water and the water level drops slowly enough to allow time for operator response, the fuel pool water level is not expected to drop to the top of the storage racks. Affidavit, ¶ 12.

29. The system piping is arranged so that failure of any pipeline cannot drain the spent fuel pool below the water level required for radiation shielding. Affidavit, ¶ 13.

30. The Staff concludes that the SFPCS, including the makeup water system, is in conformance with GDC 61 and 63 and is adequate to remove decay heat and maintain adequate levels of cooling water in the pool; consequently there will be no fuel damage and no offsite dose effect. Affidavit, ¶ 13.

31. The Staff has issued guidelines for the control of heavy loads with the two-phase objective of (1) ensuring that all load handling systems are designed and operated such that their probability of failure is uniformly small and appropriate for the critical tasks in which they are employed, and (2) ensuring that, in areas where failure might result in significant consequences, either (a) supplementary features are provided to ensure that the potential for load drop is extremely small, or (b) conservative evaluations of accidents indicate that the potential consequences of any load drop are acceptably small. NUREG-0612, "Control of Heavy Loads at Nuclear Power Plants." Affidavit, ¶ 14.

32. The guidelines are based on defense in depth and emphasize: (1) sufficient operator training, system design, instructions and equipment inspection to assure reliable operation of the system; and (2) preventing the carrying of heavy loads over irradiated fuel or safe shutdown equipment by (a) defining safe travel paths in operator training and procedures and (b) providing mechanical stops or electrical interlocks. Affidavit, ¶ 15.

33. With respect to the first phase, Applicants have committed to implementing the above objective before receiving an operating license; in addition, a license condition will be imposed requiring its implementation prior to startup following the first refueling outage. Affidavit, ¶ 16.

34. In response to the second phase of the Staff's guidelines, Applicants' submission regarding handling of casks with spent fuel from Oconee and McGuire indicates that the main hoist of the cask handling crane is prevented from traveling over the spent fuel pool by mechanical stops. Affidavit, ¶ 17.

35. Spent fuel casks will be carried along a path not passing over the spent fuel pool or safety-related equipment. Affidavit, ¶ 17.

36. Spent fuel casks will not be lifted to an elevation above any structural surface high enough to cause damage that could result in unacceptable radiological release should the cask be dropped. Affidavit, ¶ 17.

37. The walls surrounding the cask-loading area and the center of gravity of the cask are designed so that, should the cask tip after falling on the guard walls around the loading area the casks will not fall outside the cask loading area. Affidavit, ¶ 19.

38. The Staff concludes that the requirements of GDC 61 are met and there is reasonable assurance that Applicants are capable of moving spent fuel casks into and out of the spent fuel storage facility without causing damage either to the assemblies being moved or to assemblies in the spent fuel pool. Affidavit, ¶ 17.

39. Applicants have committed to assure that doses to workers are as low as reasonable achievable, and are required to keep doses to personnel within the limits provided in 10 CFR Section 20.101; the unshielded removal of the cask lid would be inconsistent with this commitment and result in a violation of the above requirement. Affidavit, ¶ 18.

40. The Staff concludes there is reasonable assurance that the storage, cooling and handling of irradiated fuel assemblies from Oconee and McGuire at Catawba will be accomplished in a manner that does not endanger the health and safety of the public. Affidavit, ¶ 19.