UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

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BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

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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' MOTION FOR SUMMARY DISPOSITION OF EDDLEMAN CONTENTION 65

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January 18, 1984

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OF EDDLEMAN CONTENTION 65

I. Introduction

Carolina Power & Light Company and North Carolina Eastern Municipal Power Agency ("Applicants") hereby move the Atomic Safety and Licensing Board, pursuant to 10 C.F.R. § 2.749, for summary disposition in Applicants' favor of Contention 65 by intervenor Wells Eddleman ("Eddleman 65"). As grounds for their motion, Applicants assert that there is no genuine issue of material fact to be heard with respect to Eddleman 65, and that Applicants are entitled to a decision in their favor on this contention as a matter of law.

This motion is supported by:

1. "Applicants' Memorandum of Law in Support of Motions for Summary Disposition on Intervenor Eddleman's Contentions 64(f), 75, 80 and 83/84," dated September 1, 1983;

2. "Applicants' Statement of Material Facts as to Which There is No Genuine Issue to be Heard (Eddleman Contention 65)"; and

3. "Affidavit of Roland M. Parsons."

II. Procedural Background

Eddleman 65 states as follows:

> Because Daniel International, CP&L's prime contractor on the Harris project, has a history of building defective base mats and containments (e.g. Callaway, Wolf Creek, Farley) a complete ultrasonic re-examination of the containment and base mat, able to detect voids over 1 inch in any size (any dimension over 1") therein, or another type of examination with similar capabilities to detect voids, is necessary before Harris 1 is allowed to operate. Otherwise the voids could become (through cracking from thermal stress, concrete aging, or external impact) paths for radioactivity to leak from containment at unforeseeable times, including during rad releases inside containment, e.g. from reactor and primary system relief valves after a ractor trip or feedwater trip.

Supplement to Petition to Intervene by Wells Eddleman, at 171 (May 14, 1982). This contention was admitted by the Board, over the objections of Applicants and the Staff, in its September 22, 1982 Memorandum and Order (Reflecting Decisions

Made Following Prehearing Conference), LBP-82-119A, 16 N.R.C. 2069, 2101 (1982).1/

Discovery has been open on Eddleman 65 since September 22, 1982. Id. at 2113. Discovery activity with respect to Eddleman 65 has included: Applicants' discovery requests to Mr. Eddleman of January 31, 1983 and September 2, 1983, and Mr. Eddleman's responses thereto of March 21, 1983 and October 21, 1983; Mr. Eddleman's discovery requests to Applicants of March 21, 1983, to which Applicants responded on May 12, 1983 and November 11, 1983;2/ the Staff's discovery requests to Mr. Eddleman of March 18, 1983, to which Mr. Eddleman responded on May 6, 1983; and, Mr. Eddleman's discovery requests to the Staff of May 6, 1983, and the Staff's responses thereto on June 24, 1983.

1/ In admitting this contention as to the quality of the construction of the Harris containment base mat, exterior walls and dome, the Board noted that it did "not intend to embark on a broad-ranging review of the contractor's past work at other projects." LBP-82-119A, supra, 16 N.R.C. at 2101.

2/ On August 4, 1983, Mr. Eddleman filed a Motion to Compel Discovery with respect to certain interrogatories on this contention. The Board partially granted Mr. Eddleman's motion during telephone conferences of September 22 and 23, 1983 and in its October 6, 1983 Memorandum and Order (Ruling on Discovery Disputes).

III. Argument

A. Standards for Summary Disposition

The general standards by which motions for summary disposition are judged are set forth in "Applicants' Memorandum of Law in Support of Motions for Summary Dispostion on Intervenor Eddleman's Contention 64(f), 75, 80 and 83/84," September 1, 1983, which is incorporated herein by reference.

B. Timeliness of the Motion

The instant motion is timely and the subject contention is ripe for summary disposition. A motion for summary disposition may be filed at any time in the course of a proceeding.3/ Wisconsin Electric Power Company (Point Beach Nuclear Plant, Unit 1), ALAB-696, 16 N.R.C. 1245, 1263 (1982); see also 10 C.F.R. § 2.749(a). Here, the sponsor of the contention has had ample opportunity -- nearly 16 months -- in which to conduct discovery on the issues.

3/ Thus the deadline established by the Board as the last day for filing motions for summary disposition of safety contentions (May 16, 1984), Memorandum and Order . . . at 7 (March 10, 1983), does not bar an earlier motion. In the case of Eddleman 65, the intervenor was advised one year ago by Applicants that summary disposition would be sought in advance of the deadline, so that discovery should be pursued expeditiously.

C. Relevant Regulatory Requirements

The design and construction of the Harris Plant containment building and base mat are governed by the Commission's General Design Criteria ("GDC") set forth in Appendix A to 10 C.F.R. Part 50. Specifically, GDC 16 and GDC 50 are applicable to the allegations raised in Mr. Eddleman's contention.4/ Additionally, as safety-related structures, the containment and base mat are also subject to the quality assurance and quality control requirements of GDC 1 and Appendix B to 10 C.F.R. Part 50.

4/ These criteria state as follows:

Criterion 16 -- Containment Design. Reactor containment and associated systems shall be provided to establish an essentially leak-tight barrier against the uncontrolled release of radioactivity to the environment and to assure that the containment design conditions important to safety are not exceeded for as long as postulated accident conditions require.

Criterion 50 -- Containment Design Basis. The reactor containment structure, including access openings, penetrations, and the containment heat removal system, shall be designed so that the containment structure and its internal compartments can accommodate, without exceeding the design leakage rate and with sufficient margin, the calculated pressure and temperature conditions resulting from any loss-of-coolant accident. This margin shall reflect consideration of (1) the effects of potential energy sources that have not been included in the determination of the peak conditions, such as energy in steam generators and, as required by § 50.44, energy from metal-water and other chemical reactions that may result from degradation, but not total failure, of emergency core cooling functioning; (2) the limited experience and experimental data available for defining accident phenomena and containment responses; and (3) the conservatism of the calculational model and input parameters.

Error-free construction, however, is not a precondition for an operating license under either the Atomic Energy Act or the Commission's regulations. What is required instead is simply a finding of reasonable assurance that the plant, as built, can and will be operated without endangering the public health and safety. 42 U.S.C. §§ 2133(d), 2232(a); 10 C.F.R. § 50.57(a)(3)(i); Pacific Gas and Electric Company (Diablo Canyon Nuclear Power Plant, Units 1 and 2), ALAB-756, 18 N.R.C. ___, slip op. at 7 (December 19, 1983); Union Electric Company (Callaway Plant, Unit 1), ALAB-740, 18 N.R.C. ___, slip op. at 2 (September 14, 1983), petition for reconsideration denied, ALAB-750, 18 N.R.C. ___ (November 29, 1983), as modified, ALAB-750A, 18 N.R.C. ___ (December 9, 1983).

D. The Inferential Basis for the Contention is Defeated by Applicants' Substantial Direct Evidence

The only asserted basis for Eddleman 65 has nothing to do directly with the Harris concrete containment structure. Rather, the asserted basis is an argument that because Daniel allegedly has constructed defective base mats and containments at other facilities (i.e., Callaway, Wolf Creek and Farley), the concrete containment at Harris is suspect and should undergo ultrasonic examination. This argument by inference should not be given any weight at this point in light of the substantial

direct evidence, discussed below, that the concrete containment structure already built for Unit 1 of the Harris plant 5/ is not defective, but rather is structurally sound.

Beyond that direct and substantial evidence, however, there are additional reasons why the inferential argument should not be considered further. First, it is clear that the Harris project can and should be distinguished from the other facilities cited in Eddleman 65. CP&L has the responsibility, not Daniel, for the management control of construction of the Harris plant. The inspection function, as it relates to concrete placement of the containment structure, is the responsibility of CP&L and therefore is subject to complete supervision and review by CP&L through visual verification and/or documentation review, and through the use of CP&L inspectors in addition to Daniel personnel. Because of the management, supervision and inspection role of CP&L at the Harris project, there is no basis for assuming that any hypothetical poor performance by Daniel would have the same impact at Harris as at the other facilities with which CP&L has no association. See Parsons Affidavit at ¶¶ 6-8.

Second, there is no reason to assume similarities in the construction of containments at these various facilities other

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5/ Unit 2 has been cancelled. See letter to the Board from counsel for Applicants, dated December 21, 1983.

than the single Daniel corporate entity. It certainly does not follow that merely because the same top management is ultimately responsible for Daniel's scope of work on these projects, that any defects in one containment concrete placement are symptomatic of like errors in the construction of another facility. See Diablo Canyon, supra, ALAB-756, slip op. at 9-10 (December 19, 1983) (rejecting the argument that because the same top management is involved, errors in construction quality assurance may be inferred from errors in design quality assurance). The containments are designed differently and by different architect/engineers. Consequently, there likely are different reinforcing steel designs which influence concrete placement difficulty, and different design specifications for the concrete as well as different placement procedures. Further, Daniel's role in construction management and quality control may not be the same at these projects. In short, beyond the absence of CP&L involvement, there is every reason to conclude that the experience at the other facilities does not apply here.

Finally, the available information contradicts the assumption that Daniel has constructed defective containments at the other cited facilities. The Board may take notice of the fact that the Commission has issued operating licenses for the two-unit Farley facility. See 42 Fed. Reg. 36900 (1977); 45 Fed. Reg. 71874 (1980). The Board may also take notice of NRC

adjudicatory decisions rejecting intervenor claims that the base mat and containment dome at the Callaway plant were built in a defective manner. See Union Electric Company (Callaway Plant, Unit 1), LBP-82-109, 16 N.R.C. 1826, 1844-54, 1870-78 (1982), aff'd, ALAB-740, supra, 18 N.R.C. ___, slip op. at 6-14 (September 14, 1983). With respect to Wolf Creek, the Staff has reported in sworn discovery responses that a single instance of significant voiding in the containment was reported in 1978 and satisfactorily repaired. NRC Staff Response to Interrogatories dated May 6, 1983 Propounded by Wells Eddleman and Joint Intervenors, June 24, 1983, at 83-84 (answer to Interrogatory 97(b)).

E. Mr. Eddleman has no Basis, Directly Applicable to the Harris Plant, to Support Contention 65

The Board stated, upon admitting Eddleman 65, that "[i]f it develops that Mr. Eddleman has little or no evidence to back up this contention, it may be amenable to summary disposition." Memorandum and Order (Reflecting Decisions Made Following Prehearing Conference), LBP-82-119A, 16 N.R.C. 2069, 2101 (1982). That situation clearly has developed.

In Applicants' initial discovery requests, Mr. Eddleman was asked to identify any known deficiencies or nonconformances associated with the containment concrete placements. Mr. Eddleman responded that he knew of no such problems, but would

pursue identification through discovery. See Eddleman's Response to Interrogatories 65-1 and 65-2 (March 21, 1983). Mr. Eddleman has not supplemented his answer to these interrogatories based upon discovery conducted to date. In follow-up interrogatories filed on September 2, 1983, Applicants attempted to elicit Mr. Eddleman's concerns regarding the procedures employed to inspect, detect and repair concrete deficiencies. Other than an allegation that the curing of concrete test cylinders bears no relation to actual site conditions,6/ Mr. Eddleman's responses consisted solely of generalized complaints regarding the description of the procedures provided by Applicants. See Eddleman's Response to Interrogatories 65-14 and 65-15 (October 21, 1983). In contrast, Applicants have answered all of Mr. Eddleman's discovery requests on the containment at Harris -- questions which in essence represented the classical "fishing expedition" effort to uncover deficiencies not known to exist.

6/ Contrary to Mr. Eddleman's position, concrete industry standards require laboratory cured specimens as control cylinders for strength evaluation criteria. This is because the laboratory provides constant and repeatable temperature and humidity for evaluation of strength. Parsons Affidavit at ¶¶ 15, 16.

F. Substantial, Direct and Uncontroverted Evidence Exists that the Harris Concrete Containment Structure is Structurally Sound

The attached affidavit of Roland M. Parsons, a civil engineer with 17 years of nuclear power plant experience who is Project General Manager for construction at Harris, demonstrates conclusively that the concrete containment structure at Harris does not suffer from significant honeycombing or voids.

Concrete placements for the Unit 1 containment were closely controlled by methods prescribed in site work, technical and administrative procedures which were developed by engineers using the designer's specifications and relevant industry standards and guidance. At every step of the placement process -- advance planning, purchase and testing of concrete constituent materials, batching, transportation, pre-placement, placement and post-placement -- a careful program of tests and inspections is applied to assure the soundness of the structure. Parsons Affidavit at ¶¶ 9-13.

Post-placement compressive strength tests performed in accordance with applicable ASTM standards show that actual strength exceeds design strength for containment concrete placements by an average of 27.9 percent. Id. at ¶¶ 14-16.

In addition, no significant honeycombing problems occurred during the placement of concrete for the base mat, exterior walls and dome of the Unit 1 containment. Neither did the

Staff inspectors who observed portions of the placements identify significant items of noncompliance. Id. at ¶ 17.

Only one of the 106 relevant concrete placements was identified as having honeycombing or voids. Not only does this demonstrate the superior performance of the construction effort, but it also shows that the quality assurance/quality control program in fact performed to identify the single instance of honeycombing requiring repair. That nonconformance in the base mat was promptly identified by Quality Control inspection, and was adequately repaired pursuant to procedures generated by engineering personnel, with the designer's review. Replacement concrete and mortar were tested, and the entire repair was approved by QC inspection. As repaired, the base mat is in at least as good a condition as called for by the original design. Id. at ¶¶ 20-22.

G. Soniscope Examination of the Containment Structure is Unwarranted

No NRC regulation or guidance, industry code or standard requires a soniscope examination of containment structures, as sought by Eddleman 65. In the absence of any reason to suspect a problem with honeycombing in the containment concrete, there is no technical basis upon which to undertake such a special investigation. Here, where only one instance of honeycombing has been identified in concrete placements involving

approximately 25,800 cubic yards of concrete with approximately 106,000 square feet of surface area, a special investigation is unwarranted. In addition, a soniscope examination of the base mat would be impractical at this stage of the construction process. Id. at ¶ 25.

There are multiple and diverse reasons to be confident that significant honeycombing (i.e., capable of influencing structural strength) is not present. First, the concrete was designed to minimize void formation. Second, special care was taken in congested areas most susceptible to this phenomenon. Finally, and most important, significant honeycombing would create a visible surface condition which would have been detected, as it was in one instance, by the comprehensive inspection program. Id. at ¶ 23.

As a final check on the structural integrity of the concrete containment, a preoperational structural proof test will be performed with an internal test pressure of 1.15 times the containment design pressure. Id. at ¶ 18.

Finally, we note that Eddleman 65 describes a scenario whereby honeycombing or voids in containment concrete provide a pathway to the environment for radiation released inside containment. This hypothesis totally ignores the fact that there is a steel liner on the inside surface of the containment which serves as a leak-tight membrane. Id. at ¶ 24.

IV. Conclusion

The Board liberally admitted Eddleman 65 on the basis of an unproven inferential argument, and Mr. Eddleman has had nearly 16 months in which to attempt to uncover a more direct basis for his contention. He has failed in this attempt because the uncontroverted facts show the Harris concrete containment structure was constructed properly and is structurally sound. Applicants submit that there is no genuine issue of material fact for hearing on this contention.

Respectfully submitted,

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