RAS 1752

May 22, 2000

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION
BEFORE THE COMMISSION

DOCKETED
USNRC

'00 MAY 26 P1:31

In the Matter of	)	
	)	
CAROLINA POWER & LIGHT	)	Docket No. 50-400 - LA
(Shearon Harris Nuclear	)	ASLBP No. 99-762-02-LA
Power Plant)	)	
	)	

ORANGE COUNTY'S PETITION FOR REVIEW OF LBP-00-12

Introduction

Pursuant to 10 C.F.R. § 2.786(b), the Board of Commissioners of Orange County, North Carolina ("Orange County") hereby petitions the Commission for review of LBP-00-12, Memorandum and Order (Ruling on Designation of Issues for an Evidentiary Hearing) (May 5, 2000). The Commission should take review of clearly erroneous rulings in LBP-00-12 regarding criticality prevention and quality assurance issues.

I. SUMMARY OF DECISION

A. Factual Background

This petition for review concerns the technical phase of an operating license amendment proceeding regarding the proposed expansion of spent fuel storage capacity at the Shearon Harris nuclear power plant. The licensee, Carolina Power & Light Company ("CP&L"), seeks to activate two spent fuel pools (labeled "C" and "D") for which it abandoned its construction permit application and quality assurance program in the early 1980's.

Pools A and B now have a combined capacity of 1,128 PWR spent fuel assemblies and 2,541 BWR assemblies. The proposed license amendment would allow CP&L to use pools C and D for storage of an additional 1,952 PWR spent fuel assemblies

Template = SECY-021

SECY-02

and 2,763 BWR assemblies.

1. Proposed criticality prevention measures

In pools A and B, CP&L currently uses a combination of physical measures to prevent criticality during normal operation: by spacing the fuel assemblies at a nominal center-to-center distance apart of 10.5 inches for PWR assemblies and 6.25 inches for BWR assemblies; and by incorporating solid neutron-absorbing materials in the racks. For pools C and D, CP&L proposes to store the PWR spent fuel assemblies much closer together, at a nominal center-to-center distance apart of 9.017 inches. This spacing is close to the smallest distance that is physically possible for intact PWR fuel, because the PWR fuel assemblies used in the Harris reactor have a square cross-section that is 8.43 inches wide. Under such high-density conditions, physical measures such as distance between fuel assemblies and solid neutron-absorbing materials will not be sufficient to prevent criticality. Therefore, in order to prevent criticality among the PWR assemblies, CP&L proposes to rely on administrative measures that would limit the combination of burnup and enrichment levels in pools C and D to an "acceptable range."[1]

2. Non-Compliance with Appendix B QA requirements

In order to activate pools C and D, CP&L plans to rely on associated piping and equipment that have sat idle since CP&L abandoned construction of Units 2, 3 and 4 in the early 1980's. During that period, piping and welds associated with pools C and D were not inspected or protected from corrosion and degradation, as required by Appendix

---

1 *See* Orange County's Detailed Summary of Facts, Data and Arguments and Sworn Submission on Which Orange County Intends to Rely at Oral Argument . . . With Respect to Criticality Prevention Issues (Contention TC-2) at 15 (January 4, 2000) (hereinafter "Orange County Criticality Summary"), *citing* Enclosure 5 to CP&L's License Amendment Application.

B to 10 C.F.R. Part 50. CP&L claims that for purposes of this license amendment application, it was not necessary to comply with Appendix B during the lengthy hiatus, and that the integrity of the embedded portion of the piping and welds is adequately demonstrated by a video-camera inspection and recent testing of the water in the pipes.

B. Procedural Background

Orange County filed a request for a hearing on the proposed license amendment, which was granted in LBP-99-25, 50 NRC 25 (1999). The Licensing Board also admitted two contentions. Contention TC-2 asserts, *inter alia*, that CP&L's reliance on control of burnup levels for criticality prevention violates GDC 62, because it constitutes an administrative measure and is therefore prohibited by GDC 62. Contention TC-3 asserts, *inter alia,* that CP&L's license amendment application does not comply with Appendix B 10 C.F.R. Part 50, because CP&L has not maintained piping and equipment in conformance with lay-up requirements of Criteria XIII, XVI, and XVII.

As permitted by 10 C.F.R. § 2.1111, CP&L invoked the hybrid hearing process. Following a period of discovery, the parties filed summaries of their factual evidence and legal arguments, along with sworn statements by their technical experts.[2] On January 21, 2000, the Licensing Board held an oral argument, which was transcribed. On May 5, 2000, the Board issued LBP-00-12, in which it concluded that CP&L had prevailed on both Contentions TC-2 and TC-3, and that Orange County had not met the standard for going forward with an evidentiary hearing.

---

2 *See* Orange County's Criticality Summary; Detailed Summary of Facts, Data and Arguments and Sworn Submission on Which Orange County Intends to Rely at Oral Argument . . . With Respect to Quality Assurance Issues (Contention TC-2) (January 4, 2000); Summary of Facts, Data and Arguments on Which Applicant Proposes to Rely at the Subpart K Oral Argument (January 4, 2000); NRC Staff Brief and Summary of Relevant Facts, Data and Arguments Upon Which the Staff Proposes to Rely at Oral

II. THE COMMISSION SHOULD GRANT REVIEW OF LBP-00-12

A. The Board's Interpretation of GDC 62 Is Clearly Erroneous.

Contention TC-2 concerns the interpretation of General Design Criterion 62, which provides as follows:

> **Prevention of criticality in fuel storage and handling.** Criticality in the fuel storage and handling system shall be prevented by physical systems or processes, preferably by use of geometrically safe configurations.

10 C.F.R. Part 50, Appendix A. The Board found that it could not rule out CP&L's proposed criticality prevention measures under this standard. LBP-00-12, slip op. at 23-27. In reaching this conclusion, the Board rejected the County's argument that the language of GDC 62 clearly precludes reliance on administrative measures for criticality prevention, and found that there is "no clear cut demarcation to differentiate the administrative and nonadministrative aspects of the criticality control procedure/processes at issue here so as to place any of them either inside or outside this label." *Id.*, slip op. at 24. Resorting for guidance to the rulemaking history of GDC 62, the Board found that it supported CP&L's and the NRC Staff's view that administrative measures were countenanced by GDC 62.

The Board was able to reach its conclusion only by ignoring the plain language of GDC 62, sidestepping relevant regulatory history, misinterpreting subsequent regulations, and failing to address the inconsistency of its decision with the history of criticality prevention in the United States. This series of clear legal errors should be reviewed by the Commission. The decision should also be reviewed because the interpretation of GDC 62 is a matter of first impression for the Commission, and has received very little interpretation by the Licensing Board. Moreover, this case raises important questions of

---

Argument on Technical Contentions 2 and 3 (January 4, 2000).

law and policy which have industry-wide implications.

1. The Licensing Board Committed Clear Legal Error.

As the County has demonstrated, the Commission plainly defined the limits of acceptable criticality prevention measures in GDC 62, by insisting that they must be "physical systems and processes," and by providing an example: geometrically safe configuration. Orange County Summary at 20-21. Applying the well-established principle of statutory construction that "*inclusio unis est exclusio alterius*" (the inclusion of one is the exclusion of another; *see* Singer, *Statutes and Statutory Construction*, Vol. 2A, § 47:23 (2000 Revision)), the regulations must be read to exclude non-physical systems and processes, *i.e.*, administrative measures, from the ambit of permitted activities. In violation of this principle, the Board held in LBP-00-12 that administrative measures are included among the activities permitted under GDC 62. *Id.*, slip op. at 25. The decision fails to explain, however, what measures are *excluded.* As a result, the limiting language of GDC 62 is left without any meaning. LBP-00-12 effectively rewrites GDC 62 as a simple injunction that "criticality must be prevented." Of course, this is not the language of the regulation. LBP-00-12 should be reviewed because it is inconsistent with the plain language of GDC 62.

Moreover, the Board's interpretation of GDC 62 is based on a distorted reading of its regulatory history. The Board attributed great significance to the wording of the proposed GDC prior to its promulgation:

> Criticality in new and spent fuel storage shall be prevented by physical systems or processes. Such means as geometrically safe configurations shall be emphasized over procedural controls.

See LBP-00-12, slip op. at 24. In the Board's view, this language from the Proposed Rule shows that the Commission intended to include procedural controls within the scope of

"physical systems and processes." *Id.* However, the Board completely overlooked the more significant fact that in the Final Rule, in response to a comment by Oak Ridge National Laboratory, the Commission *completely removed* any reference to "procedural controls." The Board also failed to examine the Proposed Rule in its entire context: shortly before the Proposed Rule was issued, a previous draft of the criticality prevention GDC (then numbered 61) provided that:

> Possibilities for inadvertent criticality must be prevented by physical systems or processes to every extent practicable. Such means as favorable geometries shall be emphasized over procedural controls.[3]

Thus, the previous proposed language would have permitted procedural measures, but would have emphasized physical measures over procedural measures. When the phrase "to every extent practicable" was removed from the language of the proposed rule, the Commission neglected to also remove the reference to procedural controls. However, this inconsistency was later corrected in the language of the final rule. The Board erroneously focused on the inclusion of the phrase "procedural controls" in the Proposed Rule, rather than noting the significance of the facts that (a) the phrase originally appeared in a draft that also would have permitted administrative criticality prevention measures, and (b) the phrase was completely removed from the Final Rule.

The Board also erred by unjustifiably and arbitrarily concluding that "there is no clear cut demarcation" between the administrative and nonadministrative aspects of CP&L's proposed criticality control measures "so as to place any of them either inside or outside this label." LBP-00-12, slip op. at 24. While it is certainly true that every physical measure has some administrative feature and vice versa, there is a fundamental

---

3 This language was included in an attachment to a letter from J.J. DiNunno of the AEC to Nunzio J. Palladino of the ACRS, dated February 8, 1967.

difference between physical measures that require one-time administrative actions such as construction and installation on the one hand, and administrative measures that require ongoing and repeated human actions. *See* Orange County Criticality Summary at 22-23. For instance, criticality prevention through spacing in racks requires one-time administrative actions of building, installing, and inspecting the racks. This stands in sharp contrast with criticality prevention through burnup control, which requires repeated and ongoing human actions to make sure that fuel is not placed in the wrong racks. The fact that adminstrative measures may have minor or tangential physical features does not undermine the conclusion that they are fundamentally administrative in nature. The Board's decision grossly oversimplifies this issue.[4]

In a single sweeping sentence, the Board also found support for its position in the NRC's adoption of 10 C.F.R. § 50.68, Reg. Guide 1.13, and previous adjudications. *Id.*, slip op. at 26. Aside from the fact that the Board completely failed to address the County's detailed arguments on these points, the Board's reliance on these authorities is misplaced. As detailed at pages 28-37 of Orange County's Criticality Summary, neither 10 C.F.R. § 50.68 nor any other Commission regulation supports the lawfulness of using administrative measures to prevent criticality in spent fuel pools. Moreover, nothing in a regulatory guide or established pattern of NRC practice can be relied on to override a duly promulgated regulation.[5] *See* Orange County's Criticality Summary at 38-39 and

---

4 *See also* tr. of oral argument at 226-28, 261-62. Contrary to the Board's simplistic assertion that "none of the parties seems to be able to define a criticality control procedure that falls wholly inside or outside of the realm either of the 'physical' or the 'administrative,'" this discussion amplifies the basis for distinguishing between physical and administrative criticality prevention measures. *See* LBP-00-12 at 23 note 5.

5 As discussed in Orange County's Criticality Summary at 3, Draft Reg. Guide 1.13 provides useful guidance for determining whether proposed physical systems and processes are adequate to satisfy the requirements of GDC 62. It cannot be read,

citations therein. The fact that the NRC Staff has been allowing licensees to use administrative measures for criticality prevention lends no legitimacy to the practice, but only raises more cause for alarm that the agency staff has strayed so far and so consistently from enforcing the plain language of the regulation.[6] Finally, contrary to the Licensing Board's conclusion, prior adjudications provide no support for the Board's interpretation of GDC 62. Although the NRC Staff cited several decisions in its Summary (*see* pages 36-37), only one of them actually applied GDC 62.[7]

Finally, the Board completely ignores the history of the evolution of criticality prevention measures that is set forth in Orange County's Summary at 9-13. This history shows that at the time GDC 62 was promulgated, procedural measures for criticality prevention were not in use as a general matter. Over time, as the inventory of spent fuel at nuclear power plant sites increased, the NRC Staff began to relax its requirements for criticality prevention measures. Instead of referring to GDC 62, the Staff developed other guidance documents that departed from the strict standards of GDC 62 by permitting

---

however, to permit procedural measures, which are outlawed by GDC 62.

6 The Board also erred in rejecting as irrelevant Orange County's examples of incidents of fuel assembly misplacement, which raises questions about the safety of relying on procedures for burnup control. *See* LBP-00-12, slip op. at 26, Orange County's Criticality Summary at 40 and Appendix B. The Board gave no citation whatsoever for its assertion that these examples are "wholly inadequate" and "irrelevant." *Id.* In fact, the only evidence of their supposed irrelevance constituted inadmissible factual testimony by CP&L's attorney during the oral argument. *See* tr. of oral argument at 273-78. The Board also completely overlooked Orange County's evidence that the NRC Staff has never made any attempt to systematically track the incidence of fuel misplacement or to evaluate its safety significance with respect to the safety of reliance on burnup control procedures for criticality prevention. *See* Orange County's Criticality Summary at 39-40.

7 In that case, the Appeal Board's statement that there was "no evidence" to suggest that a remotely controlled makeup line was prohibited by GDC 62 suggests that the Licensing Board was presented with little information to illuminate the limits of GDC 62. *See* Consumers *Power Co.* (Big Rock Point Nuclear Plant), ALAB-725, 17 NRC 562, 571 (1983). In contrast, this proceeding contains a very complete record of the meaning and history of GDC 62.

reliance on administrative measures. LBP-00-12 is conspicuously silent regarding this significant history.

B. This Case Raises Important and Novel Legal and Policy Questions.

The current NRC Staff practice of permitting licensees to substitute procedural measures for physical criticality prevention measures is widely applied and far out of compliance with the plain language of GDC 62. No attempt has been made to evaluate the legality of this practice or its safety. Moreover, the Commission has never addressed the proper interpretation of GDC 62 in an adjudication. Although the Licensing Board has approved administrative measures for criticality prevention, in only one case has the meaning of GDC 62 been addressed, and it is not clear whether the issue was fully ventilated in that case. *See* discussion, *supra*, at 8. Accordingly, the Commission should take review of this important legal and policy issue.

C. The Licensing Board Erroneously Ignored the County's Evidence Regarding CP&L's Failure to Inspect Embedded Piping.

LBP-00-12 must be reviewed because it ignores a significant portion of Orange County's evidentiary case, *i.e.*, that video-camera inspections conducted by CP&L were deficient because they covered only the embedded welds, and did not examine embedded piping. *See* Orange County's QA Summary at 36-44. The Board unquestioningly assumed that piping was inspected along with the welds, without addressing any of the County's considerable evidence that only the welds were inspected. LBP-00-12, slip op. at 57-63. The Board also completely failed to address the County's evidence that CP&L failed to follow its own weld inspection procedures, and that a single recent water test is insufficient to demonstrate that the pipes were free of corrosive agents during a 15-year period when no records were kept. *See* Orange County's QA Summary at 29-35, 45-51.

Finally, the Board's dismissal of potential leakage from spent fuel cooling pipes as insignificant constitutes an unlawful and unacceptable relaxing of NRC quality assurance standards. *See* LBP-00-12, slip op. at 66-67.

D. The Board Erred in Refusing to Consider Orange County's Argument that CP&L Must Seek to Amend Its Construction Permit.

The Licensing Board also clearly erred in refusing to consider the County's argument that CP&L must seek a construction permit amendment in order to use piping and equipment that were abandoned in the early 1980's. LBP-00-12, slip op. at 69-70. According to the Board, this argument amounts to a new contention for which the County failed to address the late-filing standard. *Id.* To the contrary, the argument constitutes a permissible response to CP&L's and the Staff's assertions that CP&L's abandonment of its construction permit and QA program is of "no consequence" to this license amendment proceeding. *See* LBP-00-12, slip op. at 49. As the County has demonstrated, Appendix B to 10 C.F.R. Part 50 is not an optional set of regulations that can be suspended or forgotten between construction and operation, but is intended to be a cradle-to-grave requirement that accompanies a nuclear plant from start to finish.[8] *See* Orange County's QA Summary at 11-24. The Board's ruling erroneously sidesteps this critical issue by characterizing it as a late-filed contention.[9]

III. CONCLUSION

For the foregoing reasons, the Commission should take review of LBP-00-12.

---

8 Nor does any aspect of 10 C.F.R. § 50.55a support the Board's reliance on an "alternative plan" as a surrogate for Appendix B compliance. LBP-00-12, slip op. at 50.

9 Moreover, although the Board claimed to be "skeptical" that the proposed changes to the Harris plant constitute "material alternations" within the meaning of 10 C.F.R. § 50.92(a) [*see* slip op. at 70], the Board offers no rationale for its view.

Respectfully submitted,

Diane Curran
Harmon, Curran, Spielberg, & Eisenberg, L.L.P.
1726 M Street N.W., Suite 600
Washington, D.C. 20036
202/328-3500
e-mail: Dcurran@harmoncurran.com

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION
BEFORE THE ATOMIC SAFETY AND LICENSING BOARD '00 MAY 26 P1:31

In the Matter of	)	
	)	
CAROLINA POWER & LIGHT	)	Docket No. 50-400 -OLA
(Shearon Harris Nuclear	)	ASLBP No. 99-762-02-LA
Power Plant)	)	
	)	

CERTIFICATE OF SERVICE

I certify that on May 22, 2000, copies of the foregoing ORANGE COUNTY'S PETITION FOR REVIEW OF LBP-00-12 were served on the following by first class mail:

Secretary of the Commission
Attention: Rulemakings and Adjudications Staff
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Steven Carr, Esq.
Carolina Power & Light Co.
411 Fayetteville Street Mall
Post Office Box 1551 - CPB 13A2
Raleigh, NC 27602-1551

Susan L. Uttal & Brooke D. Poole, Esq.
Office of the General Counsel
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Moses Carey, Chair
Orange County Board of Commissioners
P.O. Box 8181
Hillsborough, NC 27278

Paul Thames
County Engineer
Orange County Board of Commissioners
P.O. Box 8181
Hillsborough, NC 27278

Adjudicatory File
Atomic Safety and Licensing Board
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001

Dr. Peter S. Lam
Atomic Safety and Licensing Board
Mail Stop T 3F-23
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Frederick J. Shon
Atomic Safety and Licensing Board
Mail Stop T 3F-23
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

John H. O'Neill, Jr., Esq.
William R. Hollaway, Esq.
Shaw, Pittman, Potts & Trowbridge
2300 N Street N.W.
Washington, D.C. 20037-1128

G. Paul Bollwerk, III, Chairman
Atomic Safety and Licensing Board
Mail Stop T 3F-23
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Richard A. Meserve, Chairman
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Greta J. Dicus, Commissioner
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Edward McGaffigan, Jr., Commissioner
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Nils J. Diaz, Commissioner
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Jeffrey S. Merrifield, Commissioner
'U.S. Nuclear Regulatory Commission
Washington, DC 20555

Diane Curran