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OFFICE OF SECRETARY
RULEMAKINGS AND
ADJUDICATIONS STAFF

Serial: RNP-RA/06-0121

Dec 18, 2006
Secretary, United States Nuclear Regulatory Commission
Attn: Rulemakings and Adjudications Staff
Washington, DC 20555-0001

H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2
DOCKET NO. 50-261/LICENSE NO. DPR-23

H. B. ROBINSON STEAM ELECTRIC PLANT
INDEPENDENT SPENT FUEL STORAGE INSTALLATION
DOCKET NO. 72-3/LICENSE NO. SNM-2502

INDEPENDENT SPENT FUEL STORAGE INSTALLATION
DOCKET NO. 72-60

COMMENTS ON DIRECT FINAL RULE CHANGE TO 10 CFR 50.68

Ladies and Gentlemen:

In Federal Register Notice dated November 16, 2006 (Vol. 71, No. 221, Page 66648), the NRC provided the opportunity to comment on a proposed Direct Final Rule to 10 CFR 50.68 related to "Criticality Control of Fuel Within Dry Storage Casks or Transportation Packages in a Spent Fuel Pool."

Carolina Power and Light Company, also known as Progress Energy Carolinas, Inc. (PEC), is submitting the following comments for H. B. Robinson Steam Electric Plant, Unit. No. 2:

1. PEC supports the specific wording of the proposed changes to 10 CFR 50.68. The revised rule should resolve the existing conflicts between the requirements of 10 CFR 50 and 10 CFR 72 related to criticality controls while a cask is in the Spent Fuel Pool (SFP).
2. PEC concludes that the proposed change is technically justified based on the insignificant potential for a criticality event in the SFP, as presented in Appendix A: Technical Basis Document for RIN 3150-AH95 (RN 678) in the Federal Register Notice.
3. PEC suggests that some of the information in the Technical Basis Document, as related to criticality monitoring, be revised or clarified as follows:

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SECY-02

a. The Section IV Technical Evaluation (3rd through 5th paragraph of subsection (a) for the boron dilution event) specifies that licensees are required by 10 CFR 72.124(c) to have a criticality monitoring system when loading the cask in the SFP. It states that the meaning of the 10 CFR 72.124(c) phrase "underwater monitoring is not required" is that the monitors do not have to be installed under the water, but can be installed above the water to meet the criticality monitoring requirements. As explained below, this could lead to a situation where a licensee might be viewed as being in "non-compliance" based on differing technical interpretations of what constitutes adequate "criticality monitoring."

The typical design of a nuclear power plant includes one or more gamma sensitive Area Radiation Monitors (ARMs) located in the area above the SFP. While loading a cask in the SFP, there will be approximately 23 feet of water between the ARM and a potential criticality event in the cask. With this significant amount of intervening shielding, these ARMs will not respond to the direct radiation resulting from a criticality event. The criticality event could result in cladding damage and the release of the fuel gap fission products. However, fuel being loaded into dry storage casks will have decayed for at least 3 years, therefore, the only fission product released from the fuel rod gap to the area above the SFP that is of any dose significance would be Kr-85. Kr-85 is essentially a beta emitter (only 1 gamma every 250 disintegrations) and hence the ARMs, which are only sensitive to gamma radiation, would likely not alarm. However, the airborne concentrations of Kr-85 could represent a skin dose hazard to the personnel by the SFP (see NRC Information Notice 90-08). These ARMs cannot meet the sensitivity requirements for criticality monitors as specified in 10 CFR 70.24(a)(1). 10 CFR 72 does not provide similar specific requirements for a criticality monitoring system. If the requirements for criticality monitoring to meet 10 CFR 72.124(c) are more general (e.g., a system that would warn of a radiation hazard to personnel), then the current ARMs would not meet that requirement either due to the Kr-85 impact.

The SFP ARMs cannot be considered criticality monitors because they will not respond to a criticality event. This was the reason nuclear power plants had to apply for exemptions to 10 CFR 70.24 and the reason 10 CFR 50.68 was written. The wording in 10 CFR 50.68 implies that these ARMs are not criticality monitors, as the rule states that in lieu of maintaining a criticality monitoring system, the licensee must meet a number of criteria, one of which is to maintain a radiation monitoring system in the fuel handling area. Licensees have taken credit for the SFP ARMs to meet this requirement. If these ARMs could be considered criticality monitors then 10 CFR 50.68 would not be required. If the interpretation of the requirements of 10 CFR 72.124(c) for underwater monitoring, as provided in the Technical Evaluation, are not corrected, then licensees may have to file exemption requests to 10 CFR 72.124(c).

b. The Technical Evaluation for the rule change is based, in part, on the statements that monitors will detect the criticality and hence alert the licensee on the need to take action, such as stopping the addition of unborated water, an example of which is in the second column of Page 66655. As another example, in the second column of Page 66657, the Technical Evaluation states that for a SFP reflood event, the criticality monitors would provide an indication of a criticality. For this scenario the ARMs would be off-scale high due to the limited amount of water above the spent fuel, and hence could not respond to a criticality event. Therefore, these statements in the Technical Evaluation could be misleading. As noted in Comment 2, PEC has concluded that the proposed changes are technically acceptable based on the other justifications provided, without any credit for criticality monitors.

It is PEC's position that the rule wording is acceptable and technically justified, and that the Direct Final Rule should be made effective on January 30, 2007, assuming no significant adverse comments are received. However, it is also recommended that the NRC address, in writing, the above comments related to the criticality monitoring statements in the Technical Evaluation.

If you have any questions concerning this matter, please contact me at (843) 857-1253.

Sincerely,
Original signed by
C. T. Baucom

C. T. Baucom
Supervisor - Licensing/Regulatory Programs

RAC/rac

c: Document Control Desk
NRC Resident Inspector, HBRSEP, Unit No. 2
C. P. Patel, NRC, NRR

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Date: Mon, Dec 18, 2006 3:04 PM
Subject: Comments on Direct Final Rule Change to 10 CFR 50.68

The attached are comments on Direct Final Rule Change to 10 CFR 50.68.

<<RNPRA060121.pdf>>

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Creation Date	Mon, Dec 18, 2006 3:03 PM
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MESSAGE	189	Monday, December 18, 2006 3:03 PM
TEXT.htm	977	
RNPRA060121.pdf	26322	
Mime.822	39845	

Options

Expiration Date:	None
Priority:	Standard
ReplyRequested:	No
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Security:	Standard

Junk Mail Handling Evaluation Results

Message is eligible for Junk Mail handling
This message was not classified as Junk Mail

Junk Mail settings when this message was delivered

Junk Mail handling disabled by User
Junk Mail handling disabled by Administrator
Junk List is not enabled
Junk Mail using personal address books is not enabled

Block List is not enabled