

UNITED STATES
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

July 26, 1999

Mr. David A. Lochbaum
Nuclear Safety Engineer
Union of Concerned Scientists
1616 P Street, NW - Suite 310
Washington, DC 20036-1495

SUBJECT: ALLEGATION NRR-1999-A-0032

Dear Mr. Lochbaum:

This is in reference to our letter of June 7, 1999, which indicated that we would initiate action to review your concerns related to the licensing of spent fuels pools C and D at the Shearon Harris nuclear plant discussed in your letter to the NRC dated May 14, 1999. The Carolina Power & Light Company (CP&L) informed us that they were provided a copy of your letter. CP&L has reviewed your letter and provided a response to the NRC dated June 3, 1999. The staff has reviewed the CP&L response and also performed an independent evaluation of your concerns

Enclosure 1 contains a summary of your concerns as provided in our June 7, 1999, letter and the results of our independent evaluation. A copy of CP&L's response is also included as Enclosure 2. As a result of our independent review, we were unable to substantiate your concerns. Please see Enclosure 1 for a thorough discussion of the staff's evaluation.

Your concerns are very important to us. Thank you for bringing them to our attention. I trust that this response resolves the concerns you identified. Should you have any questions on this matter please contact Jean Lee or Fiona Tobler, Senior Allegation Coordinators at 301-415-7000.

Sincerely,

Theodore R. Quay

Theodore R. Quay, Chief
Quality Assurance, Vendor Inspection,
Maintenance and Allegations Branch
Division of Inspection Program Management
Office of Nuclear Reactor Regulation

Enclosures: 1. Summary of Concerns and Resolution
2. CP&L Letter of June 3, 1999

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duplicate

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[REDACTED]

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*SEE PREVIOUS CONCURRENCES

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ALLEGATION NO. NRR-1999-A-0032

Concern 1.

A deficiency exists in the current design and licensing basis for spent fuel pools (SFP) A and B at the Shearon Harris nuclear plant (HNP). Carolina Power & Light (CP&L) has improperly established the minimum and the maximum flow rate through SFP exchangers A and B for the full core offload configuration at the same value, which cannot be physically achieved at the plant.

NRC Response:

Table 5, "Minimum SFP Heat Exchanger Component Cooling Water (CCW) Flow Requirements," of CP&L's calculation SF-0040, "Spent Fuel Pools C and D Activation Project Thermal-Hydraulic Analysis," summarizes the results of analyses performed to support the activation of SFPs C and D. The calculations support the license amendment request to activate SFPs C and D, but does not represent the current licensing basis for the CCW system supporting SFPs A and B.

The values provided in calculation SF-0040 were design values used to assure that adequate cooling will be available to SFPs A, B, C, and D. The staff agrees that the notes supporting Table 5 are unclear regarding the minimum and maximum allowable flow rates to SFP heat exchangers A and B under full core offload conditions (Normal and Abnormal). In a letter to the staff dated June 3, 1999, the licensee explained that a specific operating point was established for the CCW system (5400 gpm), then calculations were performed to demonstrate the minimum required flow to these components was less than the specified operating point. The calculations performed by the licensee included a 6 percent hydraulic margin. Therefore, the values specified in Table 5 are not the actual minimum required flow rates, but the specified operating point that ensures the minimum required flow rate is met.

Note 3 to Table 5 refers to maximum flow limits to ensure flow induced vibration problems do not occur. The note infers that CCW system flow to the SFP heat exchangers should not exceed 5400 gpm to ensure flow induced vibrations do not occur. The licensee explained in its June 3, 1999, letter that a 50 percent margin exists between the specified operating point and the calculated flow induced vibration limits. CP&L estimated that CCW system flows up to 8100 gpm could be tolerated before the potential for flow induced vibrations would become a concern. Therefore, an acceptable operating range can be established for CCW system flow to the SFP heat exchangers within the design limits of the SFP heat exchangers. We have reviewed CP&L's response and found it acceptable.

As a result of this review, your concern could not be substantiated. It should be noted, however, that CP&L stated it plans to revise the wording associated with Note 3 to Table 5 to clarify its intent.

Concern 2.

CP&L has improperly established the minimum and maximum flow rates for spent fuel pool heat exchangers A and B without accounting for flow instrumentation accuracy and uncertainty limitations.

NRC Response:

CP&L's June 3, 1999, letter states that, "Calculation SF-0040 specifically considers both instrument inaccuracies and analytical uncertainty in developing the prescribed flow balance for the CCW system and its heat exchanges." The staff has reviewed the CP&L letter and calculation SF-0040 and agrees with CP&L's conclusions. Therefore, your concern was not substantiated.

Concern 3.

CP&L may have also improperly established minimum and maximum flow rates for safety-related components without accounting for flow instrumentation accuracy and uncertainty limitations. Thirty-one calculations noted as being attached to calculation SF-0040 were not attached to the calculation supplied in response to Orange County Board of Commissioners' contentions. Therefore, you are unable to determine whether CP&L's apparent oversight was limited to spent fuel pool heat exchangers A and B.

NRC Response:

Calculation SF-0040 documents the thermal hydraulic capacity of the Component Cooling Water System to support the activation of SFPs C and D at HNP. The 31 calculations referenced are the backup attachments to SF-0040, providing the detailed analyses. The results of the detailed analyses are provided in the various tables and discussions included in calculation SF-0040. As necessary, the calculations include a margin of uncertainty, including an adjustment for flow instrument accuracy. For example, Section 4.6 of SF-0040 states that the flows resulting from the calculations were tabulated and reduced by 6 percent to account for modeling and instrument uncertainty. There is no evidence to suggest that CP&L has improperly established flow rates without proper consideration of uncertainty for any safety-related components. Therefore, your concern has not been substantiated.