From: Thomas Alexion
To: MILLAR, DANA
Date: 7/23/03 3:02PM
Subject: Spent Fuel Pool Loading Pattern RAI -Plant Systems Branch

Dana,

See the attached RAI.

Tom

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Subject:	Spent Fuel Pool Loading Pattern RAI -Plant Systems Branch
Creation Date:	7/23/03 3:02PM
From:	Thomas Alexion
Created By:	TWA@nrc.gov

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REQUEST FOR ADDITIONAL INFORMATION REGARDING
PLANT SYSTEMS BRANCH
AMENDMENT REQUEST TO REVISE THE SPENT FUEL POOL LOADING PATTERN
ARKANSAS NUCLEAR ONE, UNIT 2 (ANO-2)

In the staff's safety evaluation for WCAP-15516-P, "Westinghouse Spent Fuel Rack Criticality Analysis Methodology," the staff stated that all licensees proposing to credit soluble boron should identity potential events which could dilute the spent fuel pool soluble boron to the concentration required to maintain the 0.95 k-eff limit and should quantify the time span of these dilution events to show that sufficient time is available to enable adequate detection and suppression of any dilution event. The staff also stated that the effects of incomplete boron mixing, such as boron stratification, should be considered, and that the boron dilution analysis should also be used to justify the surveillance interval used for verification of technical specification minimum pool boron concentration. In order to complete our review, the NRC staff requests that the licensee provides the following information regarding Section 7.0, "Soluble Boron Dilution Evaluation," of Attachment 5, of their application dated June 30, 2003:

1. The fuel pool heat exchanger provides a boundary between unborated service water on the shell side and borated pool water on the tube side. The operation of the heat exchanger is such that the shell side is at a higher pressure than the tube side. In the event of a tube rupture in the spent fuel pool heat exchanger, unborated water can be introduced into the pool through the ruptured tube. Please describe how this event, and the potential dilution resulting from it, would be detected and mitigated. The response should include expected alarms and specific steps from alarm response or off-normal procedures that would lead to corrective actions.

2. Section 9.1.2 of the ANO-2 Safety Analysis Report states that damage to the spent fuel pool floor resulting from light load drops would not cause a loss of coolant inventory in excess of the capacity of the normal makeup systems. Describe how this event and the potential dilution resulting from use of unborated makeup water sources would be detected and mitigated. The response should include expected alarms and specific steps from alarm response or off-normal procedures that would lead to corrective actions.

3. Section 9.1.3 of the ANO-2 Safety Analysis Report states that service water makeup is piped to the pool, and the valves are located such that minimal operator action is required to initiate makeup from either or both service water headers. Describe how the boron dilution resulting from both a slow, steady makeup of 8 gpm or makeup at the maximum rate from the source would be detected and mitigated. Again, this response should include expected alarms and specific steps from alarm response or off-normal procedures that would lead to corrective actions.