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MCDUFFIE,M.A. Carolina Power & Light Co.
RECIP.NAME RECIPIENT AFFILIATION
DENTON,H.R. Office of Nuclear Reactor Regulation, Director

SUBJECT: Responds to Containment Sys Branch draft SER Open Item 68. Addl failure alarm located within control room unnecessary. Continuous indication will be functioning within 30 minutes of safety injection initiation per TMI Item IIFF.1.

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JUL 01 1983

Mr. Harold R. Denton, Director
Office of Nuclear Reactor Regulation
United States Nuclear Regulatory Commission
Washington, DC 20555

SHEARON HARRIS NUCLEAR POWER PLANT
UNIT NOS. 1 AND 2
DOCKET NOS. 50-400 AND 50-401
DRAFT SAFETY EVALUATION REPORT RESPONSES
CONTAINMENT SYSTEMS BRANCH

Dear Mr. Denton:

Carolina Power & Light Company hereby transmits one original and forty copies of the response to the Shearon Harris Nuclear Power Plant Draft Safety Evaluation Report (DSER) Open Item 68.

Carolina Power & Light Company will be providing responses to other Open Items in the DSER shortly.

Yours very truly,

M. A. McDuffie
Senior Vice President
Engineering & Construction

PS/ccc (6729PSA)
Attachment

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Shearon Harris Nuclear Power Plant (SHNPP)
Draft Safety Evaluation Report (DSER)
Containment Systems Branch
Open Item 68 (DSER Section 6.2.5, pages 6-27 and 6-30)

Two redundant, independent, full capacity electric (thermal) hydrogen recombiners are permanently located inside containment to control the containment hydrogen concentration. The hydrogen recombiners are designed to seismic Category I and Safety Class 2 standards and are powered from separate safeguard buses. No single active failure, coincident with the loss of offsite power, will prevent the hydrogen recombiners from performing their intended design function. When required, the hydrogen recombiners are manually actuated from the hydrogen recombiner control panels, which are located in an area within the control room environmental envelope adjacent to the main control room. Because the hydrogen recombiner control panels are not located in the main control room, it is the staff's position that a hydrogen recombiner failure alarm should be provided in the main control room.

Response

The Applicant does not believe that an additional failure alarm located within the control room is necessary. The operation of each hydrogen recombiner is manually controlled from the panel located within the control room envelope and is therefore readily accessible following a postulated accident. All hydrogen recombiner supervisory instrumentation including trouble alarms are located in the panels.

Operating procedures require that both of the redundant recombiners be started when hydrogen concentrations reaches 3 volume percent following a postulated accident. Since only one of the two recombiners is required to perform the system's safety function the operators may then selectively remove one recombiner from operation. If one recombiner is selected to be removed from operation, the operator will base the selection upon the concentration of hydrogen in various locations in the containment and upon the performance characteristics of the recombiner.

Per the requirements of NUREG-0737 Item II.F.1., continuous indication and recording of hydrogen concentration will be functioning within 30 minutes of safety injection initiation. The continuous indication and recording of hydrogen concentration will be monitored on the hydrogen analyzer remote control panel located in the main control room envelope. The hydrogen analyzer alarm, located on the main control board, annunciates and is set at a 3 percent by volume hydrogen level concentration.

Post loss-of-coolant accident (LOCA) hydrogen accumulation at 3 percent occurs approximately 7 days after an accident as shown in Final Safety Analysis Report (FSAR) Figure 6.2.5-6. FSAR Section 6.2.5 indicates that the recombiners will be manually started when the hydrogen concentration in the containment atmosphere, as monitored by the hydrogen concentration in the containment atmosphere, as monitored by the hydrogen analyzer system, reaches 3 volume percent.

This very conservative assumption was made in order to demonstrate that once a 3 volume percent concentration is reached either one of the two 100 percent capacity recombiners is sufficient to maintain containment hydrogen concentration beneath the 4 volume percent flammability limit.

Following a LOCA the control room operators will monitor the performance of the recombiners and other back panels at specific intervals (e.g., every hour). Since the recombiners will be placed in operation before the containment hydrogen concentration ever approaches 4 volume percent and since the recombiner operation will be monitored periodically, the main control board high-hydrogen alarm, in addition to the back panel indication and recording described in FSAR Section 6.2.5.2.3 "Containment Hydrogen Monitoring System," will provide adequate control for the safe operation of the hydrogen recombiners. Ample time is available for remedial operator action to compensate for degraded recombiner performance. FSAR Sections 6.2.5.2.1, 6.2.5.2.3 and 7.3.1.4.1 will be revised to reflect this change.