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RECIP.NAME RECIPIENT AFFILIATION
DENTON,H.R. Office of Nuclear Reactor Regulation, Director

SUBJECT: Forwards responses to Auxiliary Sys Branch draft SER Open Items 129 through 131 & 137 re spent fuel pool drainage & storage.Applicable FSAR sections will be revised.Responses to remaining open items forthcoming.

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Carolina Power & Light Company

JUL 05 1983

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

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

Dear Mr. Denton:

Carolina Power & Light Company (CP&L) hereby transmits one original and forty copies of responses to Shearon Harris Nuclear Power Plant Draft Safety Evaluation Report Open Items. These responses are for the Auxiliary Systems Branch, and are CP&L Open Item Numbers 129, 130, 131 and 137.

We will be providing responses to other Open Items in the Draft Safety Evaluation Report shortly.

Yours very truly,

M. A. McDuffie
Senior Vice President
Engineering & Construction

JDK/ta (7134JDK)

Attachments

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411 Fayetteville Street • P. O. Box 1551 • Raleigh, N. C. 27602

DRAFT SER OPEN ITEM #129 (ASB/NW-2)

Question:

Provide the design of the new fuel storage facility which will maintain k effective equal to or less than 0.95 when considering flooding with non-borated water fire extinguishing aerosols.

Response:

The Shearon Harris Nuclear Power Plant new fuel storage design meets the acceptance criteria of SRP 9.1.1. When the storage facility is flooded with non-borated water, k effective will be equal to or less than 0.95. (The SRP also requires that K effective for an optimum moderation situation be equal to or less than 0.98.) In a foam or water mist environment, optimum moderation could be postulated; in this situation, k effective would be equal to or less than 0.98.

Draft SER Open Item No. 130 (ASB/NW-3)

Question:

Explain how draining of the new fuel pool is prevented when spent fuel is being stored.

FSAR page 9.1.3-5 refers to a siphon breaker. Does the siphon breaker meet single failure criterion? Also, does the spent fuel pool cooling piping connect to the fuel pool such that the spent fuel/new fuel pool (during storage of spent fuel) water could drain from the pools and uncover spent fuel? Provide an explanation and figures to indicate piping connections.

Response:

The fuel pool piping elevations do not allow drainage of the pool below the minimum required water level. The physical arrangement of the piping precludes siphoning of the pools as discussed in FSAR Section 9.1.3.3, Amendment No. 5. FSAR Figures 9.1.3-1, 9.1.3-2, 9.1.3-3 provide flow diagrams of this piping. The fuel pool wall elevations at which the lines terminate are as follows:

1. New Fuel Pool Piping

   3SF12-179SA, elevation 279'-6", Nuclear Safety Related (NS)
   3SF12-176SB, elevation 279'-6", NS
   3SF12-174SA, elevation 277'-6", NS
   3SF12-171SB, elevation 277'-6", NS
   7SF3-190, elevation 279'-6", Non-Nuclear Safety Related (NNS)

2. Spent Fuel Pool Piping

   3SF12-6SB, elevation 279'-6", NS
   3SF12-5SA, elevation 279'-6", NS
   3SF16-1SA, elevation 278'-6", NS
   3SF16-2SB, elevation 278'-6", NS
   7SF4-218, elevation 279'-6", NNS
   7SF2-218, elevation 279'-6", NNS

3. Pool Water Levels

   Normal water level, 284'-6"
   Bottom of pool, 246'-0"
   Top of spent fuel, 260.08'

4. Fuel Pool Skimmer System

   Skimmer hose length, 5'-0", suction piping elevation 285'-3"
   Skimmer System return piping, elevation 279'-6"

The failure of this non-seismic Category I, non-nuclear safety class piping provides fuel pool water losses of 5 feet or less.

The water loss from this piping failure has no impact on the conclusions of the heat load calculations and does not affect the required shield water depth for limiting exposures from spent fuel. Skimmer hose length is required to be limited to 5 feet or less to preclude siphoning of the pool to an unacceptable level.

The SHNPP FSAR will be revised to reflect the above response in a future amendment.

Draft SER Open Item No. 131 (ASB/NW-4)

Question:

Provide information to show how spent fuel will be kept cool in the event of a single failure when only Unit 1 is complete and only one pump and one heat exchanger is available to cool the fuel pools, as noted in Section 1.2.3 of the FSAR. (Section 9.1.3)

Response:

FSAR Section 1.2.3 will be modified in a future amendment to indicate that two Fuel Pool Cooling pumps and two Fuel Pool heat exchangers will be installed for Unit 1 operation.

In the event of a single failure in one of these Spent Fuel Cooling loops, the other loop will provide adequate cooling. The pool temperature with one Fuel Pool Cooling loop in operation will be equal to or less than 142°F. (Refer to FSAR Section 9.1.3 for further information.)

Draft SER Open Item No. 137 (ASB/NW-10)

Question:

Identify which heat loads cooled by the CCW are safety related and which are not.

Response:

The heat loads from the following components are considered safety related:

a) RHR Heat Exchangers
b) RHR Pumps
c) Spent Fuel Pool Heat Exchangers

Heat Loads from other components cooled by the CCW, as listed in FSAR Section 9.2.2.2.1, are non-safety related.

FSAR Section 9.2.2.2.1 and Table 9.2.2-3 will be revised to reflect this response in a future amendment.