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Docket No. 50-261

Mr. J. A. Jones
Senior Ecexutive Vice President
Carolina Power & Light Company
336 Fayetteville Street
Raleigh, North Carolina 27602

Dear Mr. Jones:

By letter dated December 1, 1980, you submitted a request for a spent fuel pool expansion for the H. B. Robinson Steam Electric Plant, Unit No. 2. We are reviewing your submittal and find we need additional information.

The information we need is detailed in enclosures 1 and 2. This is one of several requests we expect to make since other areas of review are continuing. It is requested that you respond within 30 days of the date of this letter.

Sincerely,
Original signed by:
S. A. Varga

Steven A. Varga, Chief
Operating Reactors Branch #1
Division of Licensing

Enclosures:
1. H. B. Robinson SFP Expansion Preliminary Questions
2. Radiological Assessment Branch Review

cc:
See next page

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OFFICE	ORB#1:DL	ORB#1:DL					
SURNAME	DNeighbors	SVarga:ds					
DATE	1/23/81	1/27/81					

Pockets Five

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

January 27, 1981

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Mr. J. A. Jones
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Carolina Power & Light Company
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cc:
See next page

Mr. J. A. Jones
Carolina Power and Light Company

cc: G. F. Trowbridge, Esquire
Shaw, Pittman, Potts and Trowbridge
1800 M Street, N.W.
Washington, D. C. 20036

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Home and Fifth Avenues
Hartsville, South Carolina 29550

U. S. Nuclear Regulatory Commission
Resident Inspector's Office
H. B. Robinson Steam Electric Plant
Route 5, Box 266-1A
Hartsville, South Carolina 29550

Michael C. Farrar, Chairman
Atomic Safety and Licensing
Appeal Board Panel
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Richard S. Salzman
Atomic Safety and Licensing
Appeal Board Panel
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Dr. W. Reed Johnson
Atomic Safety and Licensing
Appeal Board Panel
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Auxiliary Systems Branch
H. B. Robinson SFP Expansion Preliminary Questions

1. Section 6 of the December 1, 1980 submittal indicates that a temporary traveling bridge and hoist is to be erected on the fuel handling bridge rails. It will handle the old and new storage racks located beyond the reach of the Spent Fuel Cask Handling Crane. In this regard provide the following additional information.

   a. Describe the temporary crane, with the aid of drawings, the codes and standards to which it has been built, its load rating and the precautionary measures taken during its installation and removal which precludes it or its components from being dropped on stored spent fuel during its installation or removal.

   b. Describe and discuss, with the aid of drawings, the adequacy of the laydown area provided for the racks when the load is being transferred from the spent fuel cask handling crane to the temporary crane and the reverse.

   c. In the load handling operations involving the movement of any temporary structures, indicate and describe the load handling equipment and rigging that will be employed as well as the sequence and frequencies of these operations in order to complete the spent fuel pool modifications.

   d. Describe the lifting devices and associated attachment points interposed between the lifting devices and load. The response should include sufficient detail to enable the reviewer to conclude that they will not fail during the installation and removal of the temporary crane and storage racks or other temporary structures.

e. With the aid of drawings describe the sequence and travel paths of all heavy load handling operations that are required in order to implement the spent fuel pit modifications.

f. In regard to the travel paths, provide information which will enable the reviewer to conclude that following a load drop at any point along the travel path, that even with the most potentially adverse conditions the consequences are acceptable when the following evaluation criteria are used:

i. Releases of radioactive material that may result from damage to spent fuel based on calculations involving accidental dropping of a postulated heavy load produce doses that are well within 10 CFR Part 100 limits of 300 rem thyroid, 25 rem whole body (analyses should show that doses are equal to or less than 1/4 of Part 100 limits);

ii. Damage to fuel and fuel storage racks based on calculations involving accidental dropping of a postulated heavy load does not result in a configuration of the fuel such that k_{eff} is larger than 0.95;

iii. Damage to the spent fuel pool based on calculations of damage following accidental dropping of a postulated heavy load is limited so as not to result in water leakage that could uncover the fuel, (makeup water provided to overcome leakage should be from a borated source of adequate concentration if the water being lost is borated); and

iiii. Damage to equipment in redundant or dual safe shutdown paths, based on calculations assuming the accidental dropping of a postulated heavy load, will be limited so as not to result in loss of required safe shutdown functions.

g. Currently the technical specification limit the use of the spent fuel cask handling crane to periods when the outside ambient air temperature is greater than 33 F. Describe and discuss the temperature limitations that will be applied to the use of the temporary crane.

2. Since the spent fuel cask handling crane is an outside crane it is necessary to remove a wall panel and roof hatch cover before heavy loads can be moved into or out of the spent fuel storage area. Assuming a load drop occurs that leads to a radiological release when the opening exists, describe and discuss the significance this has on the radiological offsite doses.

3. In regard to the movement of loads into and out of the spent fuel storage area, describe and discuss the limitations imposed by the removable wall panels and roof hatch cover on the movement of heavy loads by the overhead cask crane.

4. From the figures supplied in the December 1, 1980 submittal it appears that the spent fuel pool bottom in the cask loading area is approximately 2'-5" thick. Describe and discuss the adequacy of the pool bottom to protect the gas decay tanks which are just below the fuel pool assuming that the various heavy loads (handled in the spent fuel pit modifications) are dropped over this area from their maximum drop height.

5. With the aid of drawings indicate the total number of fuel assemblies stored in the spent fuel storage pit as well as their location and decay times, in relation to the travel paths of the heavy load handling operations associated with the described modifications.

6. Section 7.4 of the December 1, 1980 submittal states that for accident conditions it can be assumed that the soluble boron is in the storage pool water during the initial conditions. However, it has not been demonstrated that the loss of pool water, containing soluble boron, could not occur in the event of a load drop accident. Describe, discuss and demonstrate that for all loads being handled over the pool that a load drop accident will not result in the loss of pool water and/or that borated makeup water is available and can be supplied at a makeup rate equal to or in excess of the loss rate until the loss of pool water is terminated. In this regard describe how the loss of pool water will be terminated and the time required to stop the loss of pool water.

7. Describe the overhead cranes protective devices which limit the bridge, trolley and hoist motions when pass heavy loads into or out of the spent fuel pool enclosure and thereby preventing the load or load carrying members from contacting the enclosure.

8. Describe the features of the overhead cask handling crane which precludes the possibility of "two blocking" while the lower load block passes over the fuel pool enclosure or demonstrate that the structure will withstand the impact of a dropped lower load block without failing or creating secondary missiles.

9. With the aid of drawings, describe the travel path that will be followed in installing and removing the temporary crane and the storage racks. Identify all equipment, essential in the safe shutdown of the reactor or employed to mitigate the consequences of a load drop which is beneath, adjacent to or otherwise within the area of influence of the dropped load along the entire travel paths.

10. In regard to the adequacy of the storage racks to protect the stored fuel from dropped loads, describe discuss and demonstrate that the consequences are acceptable should any of the normally used handling tools and their associated loads be dropped on the storage racks from their maximum drop height.

11. In accordance with section IV (4) of the enclosure to NRC letter dated April 14, 1978, describe and discuss the maximum uplift forces available from the load lifting devices spanning the spent fuel pools and the adverse consequences if they should be applied to the free standing unanchored fuel storage racks. Further, verify that the specific loads and load combinations are acceptable and conform with 3.8.4-II-3 of the Standard Review Plan.

12. The December 1, 1980 submittal indicates that the fire protection system water could be used, in conjunction with the spent fuel pit heat exchanger, to remove heat should the component cooling water be unavailable. With the aid of P&I diagrams, indicate, describe and discuss the operations required to activate this system and the length of time required to carry out these operations. Provide pertinent system information such as the flow rate, the inlet and outlet water temperatures and where is the hot fire water discharged.

13. Figures 3.3-1 and 3.3-2 of your previous submittal on increased storage capacity (September 5, 1975) shows an emergency cooling pump in parallel with the normal spent fuel pit cooling pump. From this is it correct to infer that the additional pump mentioned in Section 8 of the December 1, 1980 submittal will be the third pump operating in parallel in the spent fuel pool cooling system loop?

    Clarify and provide the pertinent pump characteristics for all pumps, the materials of fabrication as well as the codes and standards to which they conform.

    Describe and discuss the feasability and increased heat removal capability if two pumps are operated in parallel during the peak heat loads encountered during a full core off load.

14. Section 8.4.1 of the December 1, 1980 submittal states that there are two alternative means of cooling the spent fuel pool. The only alternate cooling system discussed utilizes the fire protection system water. With the aid of a P&I diagram describe and discuss the second alternate cooling system. The discussion is to include the capacity of this cooling system as well as the length of time required to carry out the steps necessary to get the system fully operational.

15. Position 6 of Regulatory Guide 1.13 states "Drains, permanently connected systems and other features that by maloperation or failure could cause loss of coolant that would uncover fuel should not be installed or included in the design." Section 9.3-3 of the FSAR indicates that a permanently installed drainage line exists which permits essentially all water to be removed.

Provide the following additional information:

a. Describe how the existing design meets Regulatory Guide 1.13. The additional information is to include the possibility of valve 797 inadvertently being open and a line break permitting all water to be removed by siphoning or operation of the spent fuel cooling loop pump.

b. Describe the pool water level, temperature, and radiation monitoring and alarm systems.

c. Describe and discuss the merits of modifying the existing system, in order to bring it more clearly in compliance with Regulatory Guide 1.13, by replacing the permanently installed drain line with a removable section which would only be installed when the pool water level is to be lowered below its normal operating limits.

471.0 RADIOLOGICAL ASSESSMENT BRANCH QUESTIONS

471.1 Describe your provisions for administratively tracking and evaluating radiation exposure during performance of this task. Include a general discussion of how individual exposure is tracked; and how exposure goals are set and tracked for the same work group involved in varying tasks (such as quality control), and for any particular task involving several work groups (such as removal of braces and struts), to assure that individual, group and task exposure are ALARA.

471.2 Identify by position which individuals are responsible for monitoring group and task exposures during the course of work (e.g., work group foreman or supervisors), and describe how this information is co-ordinated and utilized to achieve ALARA exposure.

471.3 Describe the use of mockups, specialized training, and special tools in preparation for this task as aspects of your efforts to achieve ALARA exposure (e.g., mock-ups of pool support installation, new rack installation, rack decontamination, etc.).

471.4 Describe how the radiation protection aspects of the tasks will be controlled. Include a discussion of all features to be employed, such as general employee/contract employee radiation protection training, RWP's, direct radiation protection technician surveillance, radiological engineering review of work procedures and documents, work practice on mockups, pre-work radiological reviews and briefings, experience at other facilities, etc.

471.5 Describe how divers will be protected from unnecessary exposure from spent fuel elements and how their exposures will be maintained ALARA. Include a general description of the personnel monitoring of divers, as well as description of their work functions.

471.6 Provide person-hour, dose rate and person-rem estimates for the proposed methods of rack disposal listed in Section 10.7 of the application.

JAN 30 1981