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SUBJECT: Responds to NRC Bulletin 96-002, "Movement of Heavy Loads Over Spent Fuel, Over Fuel in Reactor Core or Over Safety-Related Equipment."

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Carolina Power & Light Company

Robinson Nuclear Plant
3581 West Entrance Road
Hartsville SC 29550

Robinson File No: 13510H

Serial: RNP-RA/96-0098

MAY 13 1996

United States Nuclear Regulatory Commission

Attn: Document Control Desk

Washington, DC 20555

H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2
DOCKET NO. 50-261/LICENSE NO. DPR-23
RESPONSE TO NRC BULLETIN 96-02, "MOVEMENT OF HEAVY LOADS
OVER SPENT FUEL, OVER FUEL IN THE REACTOR CORE,
OR OVER SAFETY-RELATED EQUIPMENT"

Gentlemen:

NRC Bulletin 96-02, "Movement of Heavy Loads Over Spent Fuel, Over Fuel In The Reactor Core, Or Over Safety-Related Equipment," dated April 11, 1996, requested that certain actions be taken regarding movement of heavy loads, and required a response in accordance with 10 CFR 50.54(f) within thirty days of the date of the Bulletin. The required response in the enclosure to this letter is required to be submitted by May 13, 1996.

Questions regarding this matter may be referred to me at (803) 857-1802.

Very truly yours,

R. M. Krich
Manager - Regulatory Affairs

JSK/klb

Enclosure

c: Mr. S. D. Ebnetter, Regional Administrator, USNRC, Region II
Ms. B. L. Mozafari, USNRC Project Manager, HBRSEP
Mr. W. T. Orders, USNRC Senior Resident Inspector, HBRSEP

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Affidavit

State of South Carolina
County of Darlington

C. S. Hinnant, having been first duly sworn, did depose and say that the information contained in letter 96-0098 is true and correct to the best of his information, knowledge and belief; and the sources of his information are officers, employees, contractors, and agents of Carolina Power & Light Company.

C S Hinnant

Sworn to and subscribed before me

this 13 day of MAY 1996

(Seal) David Crook

Notary Public for South Carolina

My commission expires: MARCH 21, 2005

H. B. Robinson Steam Electric Plant, Unit No. 2
Response to NRC Bulletin 96-02, "Movement Of Heavy Loads
Over Spent Fuel, Over Fuel In The Reactor Core,
Or Over Safety-Related Equipment"

NRC Bulletin 96-02, "Movement Of Heavy Loads Over Spent Fuel, Over Fuel In The Reactor Core, Or Over Safety-Related Equipment," dated April 11, 1996, requested that licensees take the following actions.

"To ensure that the handling of heavy loads is performed safely and within the conditions and requirements specified under Title 10 of the *Code of Federal Regulations*, all addressees are requested to take the following actions:

- Review plans and capabilities for handling heavy loads while the reactor is at power (in all modes other than cold shutdown, refueling, and defueled) in accordance with existing regulatory guidelines. Determine whether the activities are within the licensing basis and, if necessary, submit a license amendment request. Determine whether changes to Technical Specifications will be required in order to allow the handling of heavy loads (e.g., the dry storage canister shield plug and associated lifting devices) over fuel assemblies in the spent fuel pool."

The Bulletin required the following written information.

- "(1) For licensees planning to implement activities involving the handling of heavy loads over spent fuel, fuel in the reactor core, or safety-related equipment within the next 2 years from the date of this bulletin, provide the following:
 - A report, within 30 days of the date of this bulletin, that addresses the licensee's review of its plans and capabilities to handle heavy loads while the reactor is at power (in all modes other than cold shutdown, refueling, and defueled) in accordance with existing regulatory guidelines. The report should also indicate whether the activities are within the licensing basis and should include, if necessary, a schedule for submission of a license amendment request. Additionally, the report should indicate whether changes to Technical Specifications will be required.
- (2) For licensees planning to perform activities involving the handling of heavy loads over spent fuel, fuel in the reactor core, or safety-related equipment while the reactor is at power (in all modes other than cold shutdown, refueling, and defueled) and that involve a potential load drop accident that has not previously been evaluated in the FSAR, submit a license amendment request in advance (6-9 months) of the planned movement of the loads so as to afford the staff sufficient time to perform an appropriate review.

- (3) For licensees planning to move dry storage casks over spent fuel, fuel in the reactor core, or safety-related equipment while the reactor is at power (in all modes other than cold shutdown, refueling, and defueled) include in item 2 above, a statement of the capability of performing the actions necessary for safe shutdown in the presence of radiological source term that may result from a breach of the dry storage cask, damage to the fuel, and damage to safety-related equipment as a result of a load drop inside the facility.
- (4) For licensees planning to perform activities involving the handling of heavy loads over spent fuel, fuel in the reactor core, or safety-related equipment while the reactor is at power (in all modes other than cold shutdown, refueling, and defueled), determine whether changes to Technical Specifications will be required in order to allow the handling of heavy loads (e.g., the dry storage canister shield plug) over fuel assemblies in the spent fuel pool and submit the appropriate information in advance (6-9 months) of the planned movement of the loads for NRC review and approval."

We have completed the review discussed in the Requested Actions, and are providing the following responses.

Response 1

We are not planning to handle any new heavy loads or use different load paths, that have not been previously evaluated, over spent fuel, fuel in the reactor core, or safety-related equipment within the next 2 years while the reactor is at power (i.e., when the reactor is in all modes other than cold shutdown, refueling, and defueled) at H. B. Robinson Steam Electric Plant (HBRSEP), Unit No. 2. The only heavy loads that would be handled during power operations are the movement of the IF-300 Spent Fuel Shipping Cask, using the Spent Fuel Cask Handling Crane, from the Spent Fuel Pit to the Cask Washdown and Decontamination Area.

The cask could be in one of three configurations; empty, loaded with spent fuel for shipment off site or loaded with a Dry Shielded Canister (DSC) as described in the Independent Spent Fuel Storage Installation (ISFSI) Safety Analysis Report (SAR). These configurations have already been evaluated by the NRC for conformance with existing regulatory guidelines. The licensing basis for handling of the IF-300 shipping cask empty or with spent fuel for shipment off site is provided in Updated Final Safety Analysis Report (UFSAR) Section 9.1.4.1.4, "Prevention of Cask Drop Accidents," which states, "Provisions have been made to eliminate the spent fuel cask drop as a credible accident. Redundancy has been incorporated in the design of the spent fuel cask lifting yoke and the 125-ton spent fuel cask handling crane to eliminate any risk to public health and safety." The licensing basis for handling of the IF-300 shipping cask with a DSC is discussed in ISFSI SAR Section 1.3.1.7 g, "Cask Lifting out of the Pool," which states, "... the filled and closed cask is lifted out of the spent fuel pool and placed (in the vertical position) on the drying pad inside the decontamination area. This operation is performed using ISFSI procedures. During this operation, the overhead crane is equipped with a redundant yoke and as such is operating in a single failure proof mode. The use of the redundant yoke eliminates the possibility of any drop accident at this stage of operation."

The plans and capabilities for handling heavy loads were initially reviewed and documented in our response, dated August 12, 1981, to Unnumbered Generic Letter dated December 22, 1980, "Control of Heavy Loads." Subsequent information was provided in our letter dated December 15, 1982. The NRC review of our responses and the supporting safety evaluation was provided in a May 29, 1984, NRC letter. Our review of our responses to Unnumbered Generic Letter dated December 22, 1980, has verified that we are still using the overhead handling systems identified at that time, the justifications for the exclusion of identified overhead handling systems are still valid, and the design and operation of our heavy load-handling systems is still in compliance with NUREG-0612, "Control of Heavy Loads at Power Plants," Section 5.1.1, "Recommended Guidelines - General," as described in our previous submittals. As noted in our responses to the December 1980 Generic Letter, there are three minor points of exception or deviation that are still valid; we do not have field identification of safe load paths, special lifting devices do not satisfy guidelines of American National Standards Institute (ANSI) Standard N14.6-1978, "Special Lifting Devices for Shipping Containers Weighing 10,000 pounds (4500 kg) or More for Nuclear Materials," because this Standard was not in existence when our equipment was designed, and non-special lifting devices are not installed and used in accordance with the guidelines of ANSI Standard B30.9-1971, "Slings," to the extent discussed in our responses.

Technical Specifications (TS) Section 3.8.4 requires that the limit switches provided to limit travel of the crane bridge, trolley, and hoist be tested, requires that the crane ropes be inspected, and prohibits the use of the Spent Fuel Cask Handling Crane when the ambient temperature is below 33°F. Accordingly, no TS changes are required.

Since the time of initial NRC review of our responses to the December 22, 1980, Generic Letter, we have installed new motors and drive systems for the Containment Polar Crane Main Hoist, Auxiliary Hoist, Bridge, and Trolley motions. The floor control panel has been replaced by a remote radio control system and existing trolley "banjo" conductor system has been replaced by a festoon cable system. This work was performed and tested by a plant modification in accordance with ANSI Standard B30.2.0 - 1976, "Overhead and Gantry Cranes (Top Running Bridge, Single or Multiple Girder, Top Running Hoist)." This work did not affect the cranes' conformance with NUREG-0612, Section 5.1.1 as described in our previous submittals.

Since the time of initial NRC review of our responses to the December 22, 1980 Generic Letter, we have obtained a license (i.e., Special Nuclear Materials (SNM)-2502) to handle and store spent fuel in an ISFSI. This requires the loading and handling of our IF-300 shipping cask with the DSC over spent fuel stored in the spent fuel pit. The procedures for handling the shipping cask were reviewed by the NRC as part of the SAR for the ISFSI. The weight of the shipping cask with DSC is less than the 125-ton capacity of the Spent Fuel Cask Handling Crane, which is a single failure proof crane, and the use of a redundant yoke eliminates the possibility of a drop accident.

Should the need arise in the future to perform activities different than those described above, these activities will be evaluated as required by 10 CFR 50.59.

Response 2

We are not planning to handle any new heavy loads or use different load paths at HBRSEP, Unit No. 2 when the reactor is at power that would create the potential for load drop accidents that have not been evaluated in the HBRSEP, Unit No. 2 UFSAR or the ISFSI SAR. Accordingly, no TS changes are required.

In the event that it becomes necessary to handle the IF-300 shipping cask with a loaded DSC over the spent fuel pit, the ISFSI SAR drop analysis states that equipment used in the handling of the DSC is designed to withstand the inertia forces associated with transportation shock loads. The Spent Fuel Cask Handling Crane, a single failure proof crane, and a redundant yoke are used to handle the IF-300 shipping cask at all times, except when the cask is being lowered into the cradle of the skid assembly. The maximum height postulated in the ISFSI SAR cask drop analysis is 8 feet which is based on the operation of lowering the cask into the cradle of the skid assembly; however, this is not performed over spent fuel. The results of the horizontal and vertical drop analysis shows that the stresses in all components of the DSC and its internals are within the American Society of Mechanical Engineers (ASME) Code acceptance limits and are capable to withstand inertia forces associated with the 8 foot drop accident. In the unlikely event of a drop accident, the ISFSI procedure, Independent Spent Fuel Storage (ISFS) - 005, "Retrieval of the Dry Shielded Canister From the Horizontal Storage Module," provides action steps including notification of the control room operators to initiate any actions required by the Plant Emergency Plan.

Response 3

We are not currently planning to handle the IF-300 cask with a loaded DSC; however, procedures have been developed for unloading the ISFSI. A discussion of this event has been included in Response 2, above.

Response 4

We are not planning to handle any new heavy loads or use different load paths that have not been evaluated in the UFSAR for the plant or the ISFSI SAR and no TS changes are required. Should the need arise in the future to perform such activities, these activities will be evaluated as required by 10 CFR 50.59.