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TO:	ORIG	CC	OTHER	SENT AEC PDR	SENT LOCAL PDR
D. J. Skovholt	NONE			X	X

CLASS	UNCLASS	PROP INFO	INPUT	NO CYS REC'D	DOCKET NO:
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DESCRIPTION:
Facsimile furnishing addl info in support of application for power increase.....

ENCLOSURES:

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PLANT NAME: H. B. Robinson Unit #2

FOR ACTION/INFORMATION 5-2-74 GC

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Regulatory Docket File

Recvd 4/30
3:30 p.m. Both

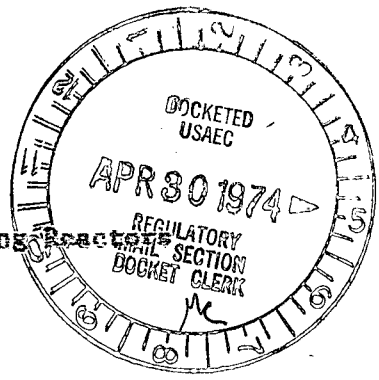
CP&L

Carolina Power & Light Company

April 29, 1974

File: NG-3514

Serial: NG-74-529



Mr. Donald J. Skovholt
Assistant Director for Operating Reactors
Directorate of Licensing
Office of Regulation
U. S. Atomic Energy Commission
Washington, D. C. 20545

50-261

Dear Mr. Skovholt:

H. B. ROBINSON UNIT NO. 2
LICENSE DPR-23
ADDITIONAL INFORMATION IN SUPPORT OF APPLICATION FOR POWER INCREASE

During discussions with members of your staff, it was determined that certain additional information to support our application for a core power increase to 2300 MWt on our H. B. Robinson Unit No. 2 plant should be filed in our docket. This letter addresses these items of information, which consist of an evaluation of operation at 2300 MWt, under the Final Acceptance Criteria for the ECCS, plant operator procedures in the event of earthquake and information on and status of the gross failed fuel monitor and the boron concentration measurement device, which are installed in the plant. The latter three items were items addressed in the ACRS letter of April 16, 1970, for which information had not been filed previously.

Plant operation at 2300 MWt with application of the Final Acceptance Criteria to the operation of the Emergency Core Cooling System is not expected to result in a reduction in power level or be more difficult than operation during Cycle 2 at 2200 MWt under the Interim Acceptance Criteria. This evaluation is based on the fact that core fuel Regions 2 and 3 densification analyses indicated the potential for collapsed fuel cladding sections, which limited the peak clad temperature to 1800°F for LOCA analyses. As stated in our application of February 1, 1974, these fuel regions will be removed during the refueling outage which begins on May 4, 1974, and no fuel with the potential for collapse will be inserted in Cycle 3. In addition, the densification spike penalty factors for collapsed fuel under the early densification model employed by the fuel vendor, Westinghouse, were much more severe than those presently assumed for uncollapsed fuel using the new vendor model approved in March, 1974. It should also be recognized that discussions between the AEC and Carolina Power & Light Company during June and July of 1973 led to application of a significant penalty for power peaking occurring toward the top of the core, which was a preview of operation under the application of the Final Acceptance Criteria in this area. In spite of the above restraints, operation at the full rated power level of 2200 MWt was successfully accomplished after approval was granted by the Commission on July 25, 1973, and has continued with little problem until the present.

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3879

Operation at 2300 MWt under the Interim Acceptance Criteria for Cycle 3 has been assumed in the information filed with our application on February 1, 1974. With the removal of collapsed fuel, the result is a total core peaking factor limit, F_Q^T, of 2.65, as compared with a limit of 2.41 for collapsed fuel regions in Cycle 2 at 2200 MWt. Application of the Final Acceptance Criteria is expected to reduce F_Q^T by 0.35, to a value of approximately 2.30, or a 5% reduction in the peaking factor limit compared to Cycle 2. However, as stated above, the densification spike penalty is reduced significantly for operation at the uprated power level. The penalty due to peak power generation toward the top of the core is expected to be slightly greater than was assumed in Cycle 2 but is more than offset by the reduction in densification spike penalty factor. It is estimated that the applied peaking factor penalty will be approximately 13% less for 2300 MWt operation as compared to Cycle 2, 2200 MWt operation, assuming a peak power generation at the 10 foot elevation of the core. This is a conservative assumption, given the Cycle 2 operation history and the fact that 2/3 of the core will be fresh fuel, producing a power shape peaked toward the axial center of the core.

In summary, although there is an estimated 5% reduction in the total peaking factor limit compared to 2200 MWt operation, there is a corresponding estimated 13% increase in margin between measured and limiting peaking factors. Based on the above evaluation, Carolina Power & Light Company is confident that operation at 2300 MWt under the Final Acceptance Criteria will be more flexible than operation at 2200 MWt during Cycle 2. Operation of the APDMS system will be continued, if necessary, to assure that peaking factor limits are not violated.

In the event of an earthquake in the region of the H. B. Robinson site, the following actions are taken:

If a seismic alarm (setpoint = .01 g horizontal acceleration) is received in the control room, plant parameters are checked to detect any changes in conditions, a walk-through inspection of the plant is taken to detect any evidence of equipment damage, control rod operability is checked and film from the Strong-Motion Recorder is retrieved and processed. If plant conditions remain normal, operation can continue upon approval of the plant manager or designated alternate.

After processing of the film from the Strong-Motion Recorders, the following actions are taken:

a. If indicated accelerations are less than 0.1 g (horizontal) or 0.067 g (vertical), and no equipment damage is discovered which will affect safe operation of the plant, operation can continue.

b. If indicated accelerations are between 0.1 g and 0.2 g (horizontal) or 0.067 g and 0.133 g (vertical) or equipment damage is discovered, an analysis of plant operational data and the results of the walk-through inspection will be reviewed to determine whether operation of the plant can be continued.

c. If indicated accelerations exceed 0.2 g (horisontal) or 0.16 g (vertical), the reactor shall be shutdown.

This information was obtained from the H. B. Robinson Unit No. 2 Standing Order No. 5, Seismic Disturbances.

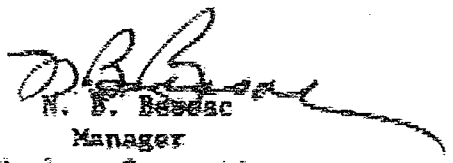
Recorders: two Strong-Motion Recorders, Model RFT-250, by Teledyne-Geotech.

Methods for continuous monitoring of Boron Concentration:

The Boron Concentration measuring system is an electronuclear system which employs neutron-counting principles and electronic circuitry to measure the neutron absorption of boric acid in water; the results are in terms of PPM boron (parts total boron per million parts of water). This system is designed to an accuracy of ± 10 PPM for 0-1800 PPM Boron and an accuracy of ± 1.25% for 1800-5000 PPM Boron. This system was installed during plant construction and has never been a reliable monitoring system. It has had a multitude of problems and has been out of service approximately 90% of its time at the plant.

The failed fuel monitor consists essentially of an area monitor channel with its detector located on the letdown line for the purpose of detecting a cladding failure in the reactor core. Channel R-9 consists of an indicator and power supply, remote G.M. detector, and a remote alarm light and meter. Radiation monitor R-9 was installed in 1970 and has been a reliable detector.

Yours very truly,



M. B. Bensac
Manager
Nuclear Generation

DBW:mvp

cc: Messrs. T. E. Bowman
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W. B. Howell
D. V. Meuscer
E. E. Utley
D. B. Waters