

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

LICENSE AUTHORITY FILE COPY

November 24, 1975

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Posted

*Am-15 } DPR-47
Ch-20 }*

Jacket Nos. 50-269
50-270
and 50-287

Duke Power Company
ATTN: Mr. William O. Parker, Jr.
Vice President
Steam Production
Post Office Box 2178
422 South Church Street
Charlotte, North Carolina 28242

Gentlemen:

The Commission has issued the enclosed Amendment No. 15, Technical Specification Change No. 25 for License No. DPR-38; Amendment No. 15, Technical Specification Change No. 20 for License No. DPR-47; and Amendment No. 12, Technical Specification Change No. 12 for License No. DPR-55, for the Oconee Nuclear Station, Units 1, 2, and 3. These amendments are in response to your request dated November 10, 1975.

These amendments provide Oconee Unit 1 control rod position and operational power imbalance limits for four-pump operation applicable to the period after 245 + 10 Effective Full Power Days of operation.

Copies of the related Safety Evaluation and the Federal Register Notice are also enclosed.

Sincerely,

for *Thomas V. Wambach*
Robert A. Purple, Chief
Operating Reactors Branch #1
Division of Reactor Licensing

Enclosures:

1. Amendment No. 15 to DPR-38
2. Amendment No. 15 to DPR-47
3. Amendment No. 12 to DPR-55
4. Safety Evaluation
5. Federal Register Notice

cc w/enclosures:
See next page

cc w/enclosures:

Mr. William L. Porter
Duke Power Company
P. O. Box 2178
422 South Church Street
Charlotte, North Carolina 28242

Mr. Troy B. Conner
Conner & Knotts
1747 Pennsylvania Avenue, NW
Washington, D. C. 20006

Oconee Public Library
201 South Spring Street
Walhalla, South Carolina 29691

Honorable Reese A. Hubbard
County Supervisor of Oconee County
Walhalla, South Carolina 29621

cc w/enclosures & incoming:

Mr. Elmer Whitten
State Clearinghouse
Office of the Governor
Division of Administration
1295 Pendleton Street
4th Floor
Columbia, South Carolina 29201

Mr. Dave Hopkins
Environmental Protection Agency
1421 Peachtree Street, NE
Atlanta, Georgia 30309

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

DUKE POWER COMPANY

DOCKET NO. 50-269

OCONEE NUCLEAR STATION, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 15
License No. DPR-38

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Duke Power Company (the licensee) dated November 10, 1975, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
 - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations; and
 - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public.
2. Accordingly, the license is amended by a change to the Technical Specifications as indicated in the attachment to this license amendment and Paragraph 3.B of Facility License No. DPR-38 is hereby amended to read as follows:



" B. Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications, as revised by issued changes thereto through Change No. 25."

3. This license amendment is effective as of the date of its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

for *Thomas V. Wambach*
Robert A. Purple, Chief
Operating Reactors Branch #1
Division of Reactor Licensing

Attachment:
Change No. 25 to the
Technical Specifications

Date of Issuance: November 24, 1975

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

DUKE POWER COMPANY

DOCKET NO. 50-270

OCONEE NUCLEAR STATION, UNIT 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 15
License No. DPR-47

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Duke Power Company (the licensee) dated November 10, 1975, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
 - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations; and
 - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public.
2. Accordingly, the license is amended by a change to the Technical Specifications as indicated in the attachment to this license amendment and Paragraph 3.B of Facility License No. DPR-47 is hereby amended to read as follows:



"B. Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications, as revised by issued changes thereto through Change No. 20 ."

3. This license amendment is effective as of the date of its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

for 
Robert A. Purple, Chief
Operating Reactors Branch #1
Division of Reactor Licensing

Attachment:
Change No. 20 to the
Technical Specifications

Date of Issuance: November 24, 1975

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

DUKE POWER COMPANY

DOCKET NO. 50-287

OCONEE NUCLEAR STATION, UNIT 3

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 12
License No. DPR-55

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Duke Power Company (the licensee) dated November 10, 1975, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
 - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations; and
 - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public.
2. Accordingly, the license is amended by a change to the Technical Specifications as indicated in the attachment to this license amendment and Paragraph 3.B of Facility License No. DPR-55 is hereby amended to read as follows:



"B. Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications, as revised by issued changes thereto through Change No. 12."

3. This license amendment is effective as of the date of its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

for 
Robert A. Purple, Chief
Operating Reactors Branch #1
Division of Reactor Licensing

Attachment:
Change No. 12 to the
Technical Specifications

Date of Issuance: November 24, 1975

ATTACHMENT TO LICENSE AMENDMENTS

AMENDMENT NO. 15 TO FACILITY LICENSE NO. DPR-38
CHANGE NO. 25 TO TECHNICAL SPECIFICATIONS;

AMENDMENT NO. 15 TO FACILITY LICENSE NO. DPR-47
CHANGE NO. 20 TO TECHNICAL SPECIFICATIONS;

AMENDMENT NO. 12 TO FACILITY LICENSE NO. DPR-55
CHANGE NO. 12 TO TECHNICAL SPECIFICATIONS

DOCKET NOS. 50-269, 50-270, AND 50-287

Revise Appendix A as follows:

Remove pages 3.5-7, 3.5-8, 3.5-13 and 3.5-21, and insert revised pages 3.5-7, 3.5-8, 3.5-13 and 3.5-21.

- g. If within one (1) hour of determination of an inoperable rod, it is not determined that a $1\% \Delta k/k$ hot shutdown margin exists combining the worth of the inoperable rod with each of the other rods, the reactor shall be brought to the hot standby condition until this margin is established.
- h. Following the determination of an inoperable rod, all rods shall be exercised within 24 hours and exercised weekly until the rod problem is solved.
- i. If a control rod in the regulating or safety rod groups is declared inoperable, power shall be reduced to 60 percent of the thermal power allowable for the reactor coolant pump combination.
- j. If a control rod in the regulating or axial power shaping groups is declared inoperable, operation above 60 percent of rated power may continue provided the rods in the group are positioned such that the rod that was declared inoperable is maintained within allowable group average position limits of Specification 3.5.2.2.a and the withdrawal limits of Specification 3.5.2.5.c.

5.2.3 The worths of single inserted control rods during criticality are limited by the restrictions of Specification 3.1.3.5 and the control rod position limits defined in Specification 3.5.2.5.

25/20/12

5.7 Quadrant Power Tilt

- a. Whenever the quadrant power tilt exceeds 4 percent, except for physics tests, the quadrant tilt shall be reduced to less than 4 percent within two hours or the following actions shall be taken:
 - (1) If four reactor coolant pumps are in operation, the allowable thermal power shall be reduced by 2 percent of full power for each 1 percent tilt in excess of 4 percent below the power level cutoff (see Figures 3.5.2-1A1, 3.5.2-1A2, 3.5.2-1B1, 3.5.2-1B2, 3.5.2-1B3, 3.5.2-1C1, 3.5.2-1C2, and 3.5.2-1C3).
 - (2) If less than four reactor coolant pumps are in operation, the allowable thermal power shall be reduced by 2 percent of full power for each 1 percent tilt below the power allowable for the reactor coolant pump combination as defined by Specification 2.3.
 - (3) Except as provided in 3.5.2.4.b, the reactor shall be brought to the hot shutdown condition within four hours if the quadrant tilt is not reduced to less than 4 percent after 24 hours.
- b. If the quadrant tilt exceeds 4 percent and there is simultaneous indication of a misaligned control rod per Specification 3.5.2.2, reactor operation may continue provided power is reduced to 60 percent of the thermal power allowable for the reactor coolant .

25/20/12

pump combination.

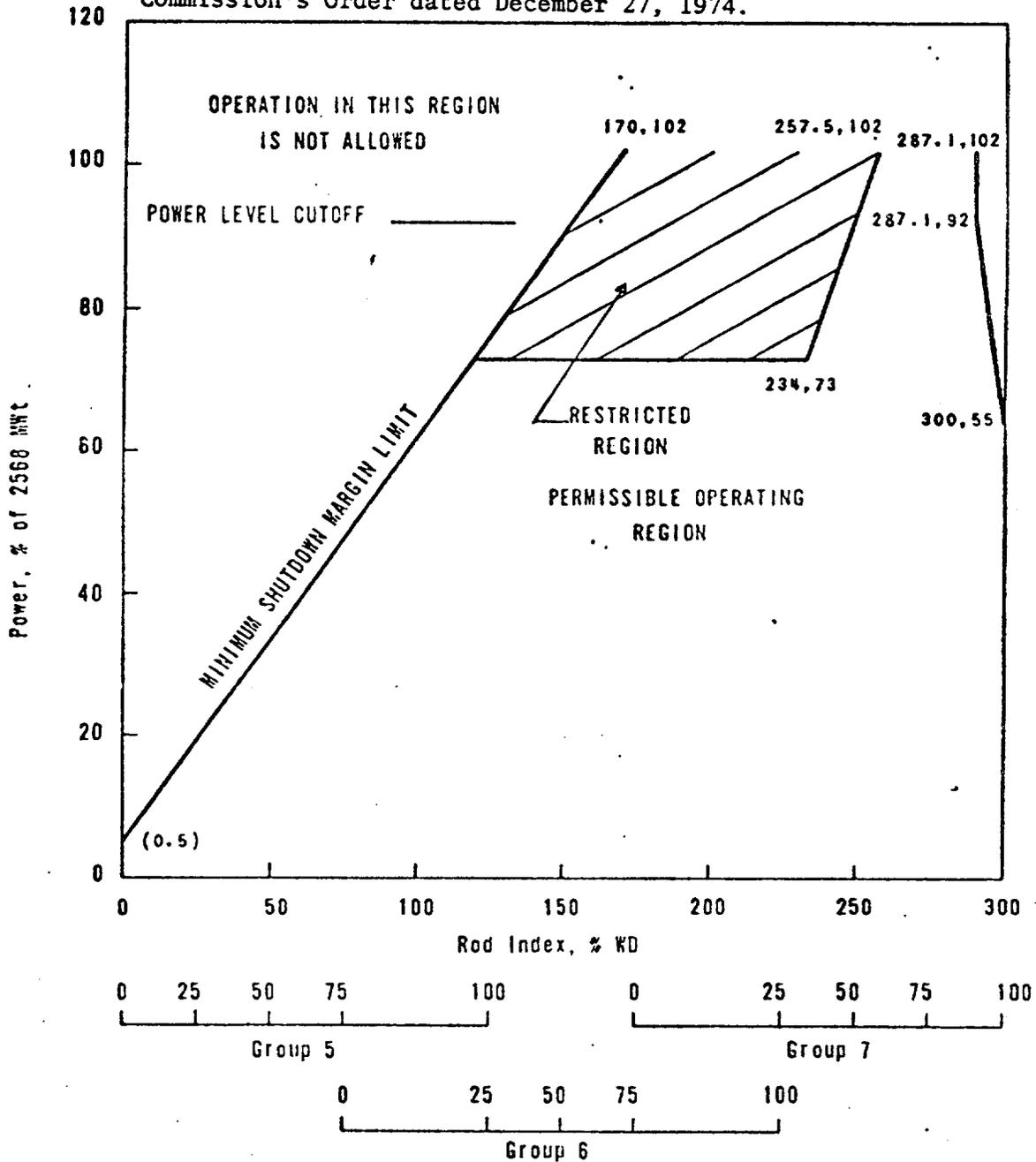
- c. Except for physics tests, if quadrant tilt exceeds 9 percent, a controlled shutdown shall be initiated immediately and the reactor shall be brought to the hot shutdown condition within four hours.
- d. Whenever the reactor is brought to hot shutdown pursuant to 3.5.2.4.a(3) or 3.5.2.4.c above, subsequent reactor operation is permitted for the purpose of measurement, testing, and corrective action provided the thermal power and the power range high flux setpoint allowable for the reactor coolant pump combination are restricted by a reduction of 2 percent of full power for each 1 percent tilt for the maximum tilt observed prior to shutdown.
- e. Quadrant power tilt shall be monitored on a minimum frequency of once every two hours during power operation above 15 percent of rated power.

3.5.2.5 Control Rod Positions

- a. Technical Specification 3.1.3.5 does not prohibit the exercising of individual safety rods as required by Table 4.1-2 or apply to inoperable safety rod limits in Technical Specification 3.5.2.2. 25/20/12
- b. Operating rod group overlap shall be $25\% \pm 5\%$ between two sequential groups, except for physics tests.
- c. Except for physics tests or exercising control rods, the control rod withdrawal limits* are specified on Figures 3.5.2-1A1 and 3.5.2-1A2 (Unit 1) 25/20/12 3.5.2-1B1, 3.5.2-1B2 and 3.5.2-1B3 (Unit 2), and 3.5.2-1C1, 3.5.2-1C2, and 3.5.2-1C3 (Unit 3) for four pump operation and on Figures 3.5.2-2A (Unit 1), 3.5.2-2B (Unit 2), and 3.5.2-2C (Unit 3) for three or two pump operation. If the control rod position limits are exceeded, corrective measures shall be taken immediately to achieve an acceptable control rod position. Acceptable control rod positions shall then be attained within two hours.
- d. Except for physics tests, power shall not be increased above the power level cutoff as shown on Figures 3.5.2-1A1 and 3.5.2-1A2 (Unit 1) [see additional 25/20/12 operating restrictions for Unit 1]* 3.5.2-1B1, 3.5.2-1B2, and 3.5.2-1B3 (Unit 2), and 3.5.2-1C1, 3.5.2-1C2, 3.5.2-1C3 (Unit 3, unless the following requirements are met.
 - (1) The xenon reactivity shall be within 10 percent of the value for operation at steady-state rated power.
 - (2) The xenon reactivity shall be asymptotically approaching the value for operation at steady-state rated power.

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ROD POSITION LIMITS FOR 4 PUMP OPERATION APPLICABLE TO THE PERIOD AFTER 245 ± 10 EFPD, as provided for in the Commission's Order dated December 27, 1974.



Rod index is the percentage sum of the withdrawal of Groups 5, 6 and 7.

UNIT 1
ROD POSITION LIMITS FOR
4 PUMP OPERATION

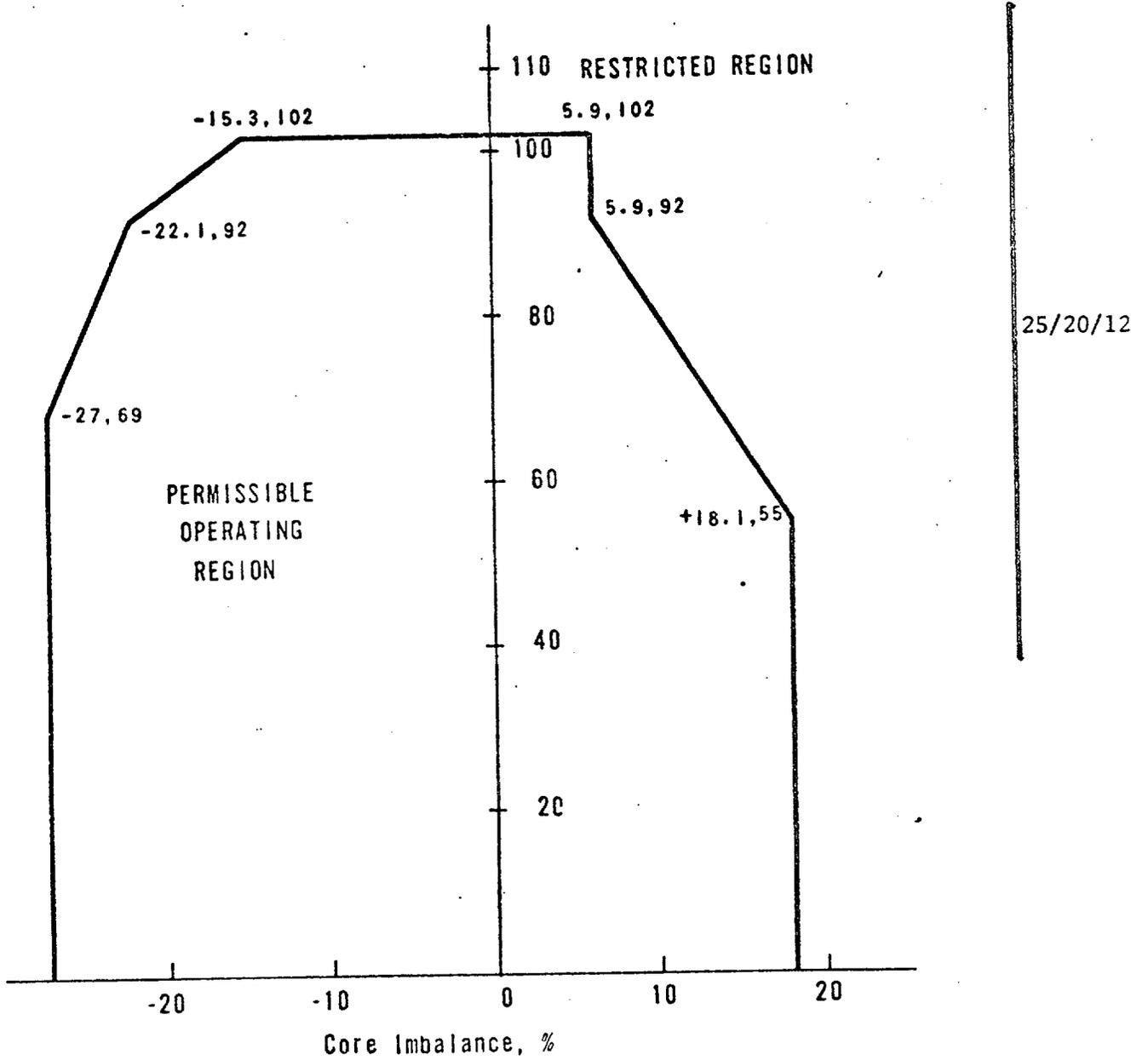


OCONEE NUCLEAR STATION

Figure 3.5.2-1A2

NOV 24 1975

Power, % of 2568 MWt



UNIT 1
OPERATIONAL POWER IMBALANCE ENVELOPE



OCONEE NUCLEAR STATION

Figure 3.5.2-3A

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 15 TO FACILITY LICENSE NO. DPR-38
CHANGE NO. 25 TO TECHNICAL SPECIFICATIONS;

AMENDMENT NO. 15 TO FACILITY LICENSE NO. DPR-47
CHANGE NO. 20 TO TECHNICAL SPECIFICATIONS;

AMENDMENT NO. 12 TO FACILITY LICENSE NO. DPR-55
CHANGE NO. 12 TO TECHNICAL SPECIFICATIONS

DUKE POWER COMPANY

OCONEE NUCLEAR STATION, UNITS 1, 2, AND 3

DOCKET NOS. 50-269, 50-270, AND 50-287

Introduction

By letter dated November 10, 1975, Duke Power Company (the licensee) requested a change in the Technical Specifications of Licenses No. DPR-38, DPR-47, and DPR-55 for the Oconee Nuclear Station, Units 1, 2, and 3. The proposed amendments would provide Oconee Unit 1 control rod position (withdrawal) and operational power imbalance limits for four pump operation applicable to the period after 245 ± 10 Effective Full Power Days (EFPD) of operation.

Discussion

On December 27, 1974, the staff issued an Order for Modification of License (the Order) which required that the licensee submit a reevaluation of Oconee Emergency Core Cooling Systems (ECCS) performance and identified the limits for continued reactor operation during the interim. These limits were a combination of existing technical specifications, technical specification changes previously submitted by the licensee, and additional restrictions of Appendix A to the Order. The additional restrictions were considered necessary in order to compensate for deficiencies noted in the Babcock & Wilcox (B&W) ECCS evaluation model and were imposed to assure continued conformance to the criteria of 10 CFR 50.46 until the ECCS reevaluation required by the Order received final approval by the staff.

Figure A-4 of Appendix A to the Order established the control rod withdrawal limits and Figure A-5, the associated power imbalance limits for Oconee Unit 1. Note 2 on Figure A-4 states that "the withdrawal limits are modified after 250 ± 5 full power days of operation". The appropriate limits for operation beyond 250 EFPD were not included in the Order since it was anticipated that staff approval for the limits based on the FAC (Final Acceptance Criteria) for ECCS cooling performance would be issued prior to 250 EFPD of operation of Oconee Unit 1. However, staff evaluation of the licensee's revised FAC submittal is not yet complete and may not be completed before withdrawal of control rod group 7 (presently precluded by Figure A-4) is necessary to maintain full power operation. The licensee has indicated that, based on current boron concentration measurements, Group 7 may be required at 235 EFPD instead of the previously estimated 250 EFPD. Accordingly, the licensee, by application dated November 10, 1975, has requested approval of rod withdrawal limits, and associated power imbalance limits, for operation beyond 245 ± 10 EFPD.

Evaluation

The changes required in the B&W ECCS evaluation model necessitated a series of sensitivity studies by B&W to identify the effect of the model changes on the results of previous calculations affecting the Oconee units. Our review of the results of these studies revealed that the operating restriction for Oconee Unit 1 as identified in Appendix A to the Order would be required to ensure that in the event of a postulated loss-of-coolant accident (LOCA), the ECCS cooling performance would not exceed the values for calculated peak clad temperature and oxidation and hydrogen generation limits set forth in 10 CFR 50.46. These operating restrictions included, among other things, the rod withdrawal and axial power imbalance limits of Figures A-4 and A-5, previously mentioned.

The proposed rod withdrawal and axial power imbalance limits for operation beyond 245 ± 10 EFPD were calculated by the licensee using methods we have previously found acceptable and upon which we relied in establishing the necessary operating restrictions in the Order. We, therefore, conclude that operation of Unit 1 beyond 245 ± 10 EFPD with the proposed rod withdrawal and axial power imbalance limits, and with no change in the other operating restrictions in the Order, will assure that ECCS cooling performance will continue to conform to all of the criteria contained in 10 CFR §50.46(b), which govern calculated peak clad temperature, maximum cladding oxidation, maximum hydrogen generation, coolable geometry and long-term cooling.

The incorporation of these new limits in the technical specifications does not conflict with nor require revision of the Order since with respect to the rod withdrawal limits, the requirement for new limits

(for operation beyond 250 EFPD) was recognized and provided for in the Order and, with respect to the axial power imbalance limits, the new limits are more restrictive than those in the Order.

In summary, we have concluded that the proposed rod withdrawal and power imbalance limits for Oconee Unit 1 meet the requirements of the Order of December 27, 1974, and provide reasonable assurance that the public health and safety would not be endangered. We, therefore, find the proposed amendment to be acceptable.

Conclusion

We have concluded, based on the considerations discussed above, that: (1) because the change does not involve a significant increase in the probability or consequences of accidents previously considered and does not involve a significant decrease in a safety margin, the change does not involve a significant hazards consideration, (2) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and (3) such activities will be conducted in compliance with the Commission's regulations and the issuance of these amendments will not be inimical to the common defense and security or to the health and safety of the public.

Date: November 24, 1975

UNITED STATES NUCLEAR REGULATORY COMMISSION

DOCKET NOS. 50-269, 50-270 AND 50-287

DUKE POWER COMPANY

NOTICE OF ISSUANCE OF AMENDMENTS TO FACILITY
OPERATING LICENSES

Notice is hereby given that the U.S. Nuclear Regulatory Commission (the Commission) has issued Amendments No. 15, 15, and 12 to Facility Operating Licenses No. DPR-38, DPR-47, and DPR-55, respectively, issued to Duke Power Company which revised Technical Specifications for operation of the Oconee Nuclear Station, Units 1, 2, and 3, located in Oconee County, South Carolina. The amendments are effective as of the date of issuance.

These amendments provide Oconee Unit 1 control rod position and operational power imbalance limits for four-pump operation applicable to the period after 245 ± 10 Effective Full Power Days of operation.

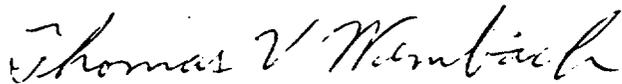
The application for the amendments complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations. The Commission has made appropriate findings as required by the Act and the Commission's rules and regulations in 10 CFR Chapter I, which are set forth in the license amendments. Prior public notice of these amendments is not required since the amendments do not involve a significant hazards consideration.

For further details with respect to this action, see (1) the application for amendments dated November 10, 1975, (2) Amendments No. 15, 15, and 12 to Licenses No. DPR-38, DPR-47, and DPR-55, with Changes No. 25, 20, and 12, and (3) the Commission's related Safety Evaluation. All of these items are available for public inspection at the Commission's Public Document Room, 1717 H Street, NW., Washington, D.C. and at the Oconee County Library, 201 South Spring Street, Walhalla, South Carolina 29691.

A copy of items (2) and (3) may be obtained upon request addressed to the U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, Attention: Director, Division of Reactor Licensing.

Dated at Bethesda, Maryland, this 24th day of November 1975.

FOR THE NUCLEAR REGULATORY COMMISSION



Thomas V. Wambach, Acting Chief
Operating Reactors Branch #1
Division of Reactor Licensing