February 9, 1994

Docket Nos. 50-269, 50-270
and 50-287

Mr. J. W. Hampton
Vice President, Oconee Site
Duke Power Company
P. O. Box 1439
Seneca, South Carolina 29679

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Dear Mr. Hampton:

SUBJECT: ISSUANCE OF AMENDMENTS - OCONEE NUCLEAR STATION, UNITS 1, 2, AND 3 (TAC NOS. M88230, M88231, AND M88232)

The Nuclear Regulatory Commission has issued the enclosed Amendment Nos. 205 , 205 , and 202 to Facility Operating Licenses DPR-38, DPR-47, and DPR-55, respectively, for the Oconee Nuclear Station, Units 1, 2, and 3. The amendments consist of changes to the Technical Specifications (TS) in response to your application dated November 11, 1993, as supplemented November 22, 1993.

The amendments provide an interim acceptance criteria for control rod drop time on Oconee, Unit 1.

A copy of the related Safety Evaluation is also enclosed. A Notice of Issuance will be included in the Commission's biweekly Federal Register notice.

Sincerely,
ORIGINAL SIGNED BY:

Leonard A. Wiens, Project Manager
Project Directorate II-3
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Enclosures:
1. Amendment No. 205 to DPR-38
2. Amendment No. 205 to DPR-47
3. Amendment No. 202 to DPR-55
4. Safety Evaluation

cc w/enclosures:
See next page

OFFICE	PDII-3/LA	PDII-3/PM	OGC	PDII-3/D	
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DATE	1/25/94	1/25/94	2/1/94	2/9/94	

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

February 9, 1994

Docket Nos. 50-269, 50-270
and 50-287

Mr. J. W. Hampton
Vice President, Oconee Site
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P. O. Box 1439
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1. Amendment No. 205 to DPR-38
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4. Safety Evaluation

cc w/enclosures:
See next page

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

DUKE POWER COMPANY

DOCKET NO. 50-269

OCONEE NUCLEAR STATION, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 205
License No. DPR-38

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment to the Oconee Nuclear Station, Unit 1 (the facility) Facility Operating License No. DPR-38 filed by the Duke Power Company (the licensee) dated November 11, 1993, as supplemented November 22, 1993, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations as 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 set forth in 10 CFR Chapter I;

   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; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is hereby amended by page changes to the Technical Specifications as indicated in the attachment to this license amendment, and Paragraph 3.B of Facility Operating License No. DPR-38 is hereby amended to read as follows:

Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 205, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

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

FOR THE NUCLEAR REGULATORY COMMISSION

Loren R. Plisco

Loren R. Plisco, Acting Director
Project Directorate II-3
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Attachment:
Technical Specification
Changes

Date of Issuance: February 9, 1994

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

DUKE POWER COMPANY

DOCKET NO. 50-270

OCONEE NUCLEAR STATION, UNIT 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 205
License No. DPR-47

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment to the Oconee Nuclear Station, Unit 2 (the facility) Facility Operating License No. DPR-47 filed by the Duke Power Company (the licensee) dated November 11, 1993, as supplemented November 22, 1993, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations as 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 set forth in 10 CFR Chapter I;

   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; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is hereby amended by page changes to the Technical Specifications as indicated in the attachment to this license amendment, and Paragraph 3.B of Facility Operating License No. DPR-47 is hereby amended to read as follows:

Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 205 , are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

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

FOR THE NUCLEAR REGULATORY COMMISSION

Loren R. Plisco

Loren R. Plisco, Acting Director
Project Directorate II-3
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Attachment:
Technical Specification
Changes

Date of Issuance: February 9, 1994

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

DUKE POWER COMPANY

DOCKET NO. 50-287

OCONEE NUCLEAR STATION, UNIT 3

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 202
License No. DPR-55

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment to the Oconee Nuclear Station, Unit 3 (the facility) Facility Operating License No. DPR-55 filed by the Duke Power Company (the licensee) dated November 11, 1993, as supplemented November 22, 1993, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations as 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 set forth in 10 CFR Chapter I;

   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; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is hereby amended by page changes to the Technical Specifications as indicated in the attachment to this license amendment, and Paragraph 3.B of Facility Operating License No. DPR-55 is hereby amended to read as follows:

Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 202, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

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

FOR THE NUCLEAR REGULATORY COMMISSION

Loren R. Plisco, Acting Director
Project Directorate II-3
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Attachment:
Technical Specification
Changes

Date of Issuance: February 9, 1994

ATTACHMENT TO LICENSE AMENDMENT NO. 205

FACILITY OPERATING LICENSE NO. DPR-38

DOCKET NO. 50-269

AND

TO LICENSE AMENDMENT NO.205

FACILITY OPERATING LICENSE NO. DPR-47

DOCKET NO. 50-270

AND

TO LICENSE AMENDMENT NO. 202

FACILITY OPERATING LICENSE NO. DPR-55

DOCKET NO. 50-287

Replace the following page of the Appendix "A" Technical Specifications with the enclosed page. The revised page is identified by Amendment number and contains vertical lines indicating the areas of change.

Remove Page	Insert Page
4.7-1	4.7-1

4.7 REACTOR CONTROL ROD SYSTEM TESTS

4.7.1 Control Rod Trip Insertion Time Test

Applicability

Applies to the surveillance of the control rod trip insertion time.

Objective

To assure the control rod trip insertion time is within that used in the safety analyses.

Specification

The control rod insertion time shall be measured at either full flow or no flow conditions as follows:

a. For all rods following each removal of the reactor vessel head,

b. For specifically affected individual rods following any maintenance on or modification to the control rod drive system which could affect the drop time of those specific rods, and

c. For all rods at least once following each refueling outage.

The maximum control rod trip insertion time for an operable control rod drive mechanism, except for the Axial Power Shaping Rods (APSRs), from the fully withdrawn position to 3/4 insertion (104 inches travel) shall not exceed 1.66* seconds at reactor coolant full flow conditions or 1.40 seconds for no flow conditions. For the APSRs it shall be demonstrated that loss of power will not cause rod movement.

If the trip insertion time above is not met, the rod shall be declared inoperable.

* - For Unit 1 Cycle 15, Group 1, Rod 8 and Group 2, Rod 5 may be considered operable with an insertion time ≤ 3.00 sec provided:

1) the average insertion time for the remaining rods in Groups 1 and 2 is ≤ 1.50 sec, and

2) the core average negative reactivity insertion rate is within the assumptions of the safety analysis.

Bases

The control rod trip insertion time is the total elapsed time from power interruption at the control rod drive breakers until the control rod has completed 104 inches of travel from the fully withdrawn position. The specified trip time is based upon the safety analysis in FSAR Chapter 15.

A rod is considered inoperable if the trip insertion time is greater than the specified allowable time or the core average negative reactivity insertion rate is less than the assumptions of the safety analysis.

REFERENCES

(1) FSAR, Section 15
(2) Technical Specification 3.5.2

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 205 TO FACILITY OPERATING LICENSE DPR-38

AMENDMENT NO. 205 TO FACILITY OPERATING LICENSE DPR-47

AND AMENDMENT NO. 202 TO FACILITY OPERATING LICENSE DPR-55

DUKE POWER COMPANY

OCONEE NUCLEAR STATION, UNITS 1, 2, AND 3

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

1.0 INTRODUCTION

By letter dated November 11, 1993, as supplemented November 22, 1993, Duke Power Company, et al. (the licensee), submitted a request for changes to the Oconee Nuclear Station, Units 1, 2, and 3, Technical Specifications (TS). The requested changes would provide an interim acceptance criteria for control rod drop time on Oconee, Unit 1. This acceptance criteria increases allowable insertion time from the existing limit of 2 seconds to 3 seconds for two rods in Oconee, Unit 1, and would apply only for these two rods until the end of the current Cycle 15, scheduled for April 1994. The November 22, 1993, letter provided clarifying information that did not change the scope of the November 11, 1993, application and initial proposed no significant hazards consideration determination.

2.0 EVALUATION

Two control rods in Oconee, Unit 1 (Group 1 - Rod 8, and Group 2 - Rod 5), have been found to exhibit slow insertion time. An analysis has been performed at the B&W CRDM Refurbishment Facility, Parks Township, Pennsylvania, at the request of the licensee. A Unit 2 control rod drive assembly that also tested slow was shipped to this facility where it was disassembled and inspected to determine the reason for the slow trip time.

The results of this inspection revealed no abnormal defects, wear, or foreign material which would have prevented the dropping of this rod. However, it was discovered that the thermal barrier portion of the assembly was covered with a layer of black deposits of crud which typically are composed mainly of magnetite and not uncommon for B&W-type assemblies. Located in the thermal barrier are four balls which act as check valves during normal operation to allow reactor coolant water to flow into the motor tube when a rod drops into the core to fill the void left by the leadscrew. This will prevent a vacuum area from forming and slowing the rod down as it drops into the core. The buildup of this crud on the Unit 2 motor tube and thermal barrier had caused all four of these balls to become stuck in the closed position. The licensee concluded that this was the reason for the slow drop time of this rod.

Based on these findings, the licensee concluded that buildup of crud is also the reason for the slow rods on Unit 1. B&W testing and analysis also concluded that the stuck thermal barrier balls would not prevent the rod from dropping but could cause the drop time to exceed the 2 second time limit currently imposed on the Unit 1 rods. Additional testing at the B&W CRDM facility with all four balls stuck in the closed position indicates that the maximum increase in rod drop time would be about 0.4 seconds. Thus, a 3 second time limit would provide some margin to the maximum expected drop time.

On August 25, 1993, following a Unit 1 trip, control rods were tested in accordance with the TS. The drop time for the rods were below the 2 second limit. The actual drop time for Group 2 - Rod 5 was 1.938 seconds. On November 3, 1993, these rods were tested again following a Unit 1 trip. The drop time for Group 2 - Rod 5 had increased to 2.063 seconds and was declared inoperable.

The Final Safety Analysis Report (FSAR) Chapter 15 analyses assume that a reactor trip results in the insertion of negative reactivity consistent with the 1% shutdown margin TS, including the most reactive control rod stuck in the fully withdrawn position. The rate of negative reactivity insertion is based on the combination of an assumed rod position vs. time curve and a reactivity worth vs. position curve, both of which are conservative for the core design and control rod design. The rod position vs. time curve includes the effect of the rod drop time. The licensee confirmed that the rod drop time in the TS is consistent with the accident analysis assumption. Therefore, any combination of rod worth and rod drop time can be evaluated against the FSAR assumed reactivity vs. time curve.

The licensee analyzed the remainder of Unit 1 Cycle 15 assuming a 3 second drop time for Group 1 - Rod 8 and Group 2 - Rod 5 and a 1.5 insertion time for the remaining Group 1 and Group 2 control rods. This analysis was performed using NRC-approved nuclear analysis methods to quantify the control rod worths for Cycle 15.

The objective of the analysis was to verify that the core average negative reactivity insertion rate for the Oconee 1 Cycle 15 reload, taking into account the effects of the slow drop times of the two control rods in question, is greater than the assumptions of the licensing basis safety analysis. The most conservative normalized reactivity insertion curve used in the current licensing basis safety analysis was used to verify this analysis.

The licensee has proposed to increase allowable control rod insertion time for Group 1 - Rod 8 and Group 2 - Rod 5 from 2 seconds to 3 seconds. This amendment would apply for Oconee, Unit 1, for the remainder of Cycle 15, scheduled to end April 1994. The staff finds this amendment acceptable based on the licensee's evaluation which shows that even with a drop time of 3 seconds, which is about 1/2 second greater than the maximum expected drop time, the reactivity insertion rate is still greater than assumed in the licensing bases safety analysis.

3.0 STATE CONSULTATION

In accordance with the Commission's regulations, the South Carolina State official was notified of the proposed issuance of the amendments. The State official had no comments.

4.0 ENVIRONMENTAL CONSIDERATION

The amendments change surveillance requirements. The NRC staff has determined that the amendments involve no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendments involve no significant hazards consideration, and there has been no public comment on such finding (58 FR 62689 dated November 29, 1993). Accordingly, the amendments meet the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendments.

5.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendments will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: G. Schwenk

Date: February 9, 1994