

February 22, 1982

Dockets Nos. 50-269 (<u>50-270</u> and 50-287

LICENSE AUTHORITY FILE COPY

DO NOT REMOVE

Mr. William O. Parker, Jr. Vice President - Steam Production Duke Power Company P. O. Box 33189 422 South Church Street Charlotte, North Carolina 28242

Posted Amdt.107 to DPR-47

Dear Mr. Parker:

The Commission has issued the enclosed Amendments Nos. 107, 107, and 104 for Licenses Nos. DPR-38, DPR-47 and DPR-55 for the Oconee Nuclear Station, Units Nos. 1, 2 and 3. These amendments consist of changes to the Station's common Technical Specifications (TSs) in response to your request dated January 12, 1982.

These amendments revise the TS requirements concerning heatup, cooldown and inservice testing limitations for the reactor coolant system.

As stated in the enclosed Safety Evaluation Report, we have found the proposed limitations to be more conservative than the existing limitations, and on this basis found them to be acceptable. We are, however, continuing our review of your submittal in conjunction with related reviews and the results of these reviews, which will be completed in approximately three months, may determine the need for modifications to the herein approved limitations. If any modifications are required, I will contact you and present the changes we deem desirable.

Copies of the Safety Evaluation and the Notice of Issuance are also enclosed.

Sincerely,

Flilip C. Wogner

Philip C. Wagner, Project Manager Operating Reactors Branch #4 Division of Licensing

Enclosures:

- 1. Amendment No. 107 to DPR-38
- 2. Amendment No. 107 to DPR-47
- 3. Amendment No. 104 to DPR-55
- 4. Safety Evaluation
- 5. Notice

cc w/enclosures: See next page

Duke Power Company

cc w/enclosure(s):

Mr. William L. Porter Duke Power Company P. O. Box 33189 422 South Church Street Charlotte, North Carolina 28242

Oconee County Library 501 West Southbroad Street Walhalla, South Carolina 29691

Honorable James M. Phinney County Supervisor of Oconee County Walhalla, South Carolina 29621

Mr. James P. O'Reilly, Regional Administrator U. S. Nuclear Regulatory Commission, Region II 101 Marietta Street, Suite 3100 Atlanta, Georgia 30303

Regional Radiation Representative EPA Region IV 345 Courtland Street, N.E. Atlanta, Georgia 30308

William T. Orders Senior Resident Inspector U.S. Nuclear Regulatory Commission Route 2, Box 610 Seneca, South Carolina 29678

Mr. Robert B. Borsum Babcock & Wilcox Nuclear Power Generation Division Suite 220, 7910 Woodmont Avenue Bethesda, Maryland 20814

Manager, LIS NUS Corporation 2536 Countryside Boulevard Clearwater, Florida 33515

J. Michael McGarry, III, Esq. DeBevoise & Liberman 1200 17th Street, N.W. Washington, D. C. 20036 cc w/enclosure(s) & incoming dtd.:

1/12/82

Office of Intergovernmental Relations 116 West Jones Street Raleigh, North Carolina 27603



DUKE POWER COMPANY

DOCKET NO. 50-269

OCONEE NUCLEAR STATION, UNIT NO. 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 107 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 January 12, 1982, 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:
 - 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 amended by 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:

3.B Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 107 are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

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

FOR THE NUCLEAR REGULATORY COMMISSION

John F. Stolz, Chief Operating Reactors Branch #4 Division of Licensing

Attachment: Changes to the Technical Specifications

Date of Issuance: February 22, 1982



DUKE POWER COMPANY

DOCKET NO. 50-270

OCONEE NUCLEAR STATION, UNIT NO.2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 107 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 January 12, 1982, 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:
 - 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.
- Accordingly, the license is amended by 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:
 - 3.B Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 107 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 the date of its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Nohn F. Stolz, Chief Operating Reactors Branch #4 Division of Licensing

Attachment: Changes to the Technical Specifications

Date of Issuance: February 22, 1982



DUKE POWER COMPANY

DOCKET NO. 50-287

OCONEE NUCLEAR STATION, UNIT NO. 3

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 104 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 January 12, 1982, 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;
 - 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 amended by 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:

3.B <u>Technical Specifications</u>

The Technical Specifications contained in Appendices A and B, as revised through Amendment No.104 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 the date of its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Operating Reactors Branch #4 Drvision of Licensing

Attachment: Changes to the Technical Specifications

Date of Issuance: February 22, 1982

ATTACHMENT TO LI	CENSE AMENDMENTS
AMENDMENT NO.	107 TO DPR-38
AMENDMENT NO.	1 <u>07 TO DPR-47</u>
AMENDMENT NO.	104 TO DPR-55
DOCKETS NOS. 50-269,	50-270 AND 50-287

Replace the following pages of the Appendix "A" Technical Specifications with the attached pages. The revised pages are identified by amendment numbers and contain vertical lines indicating the area of change.

Remove Pages	Insert Pages
3.1-3a	3.1-3a
3.1-4	3.1-4
3.1-5	3.1-5
3.1-6	3.1-6
3.1-6a	3.1-6a
3.1-6b	3 . 1-6b
3.1-7	3.1-7
3.1-7a	3.1-7a
3.1-7b	3.1-7b
3.1-7c	3.1-7c
3.1-7d	3.1-7d
3.1-7e	3.1-7e

3.1.2.6 Prior to exceeding fifteen (Unit 1) fifteen (Unit 2) fifteen (Unit 3)

effective full power years of operation

Figures 3.1.2-1A (Unit 1), 3.1.2-2A (Unit 1) 3.1.2-1B (Unit 2), 3.1.2-2B (Unit 2) 3.1.2-1C (Unit 3), 3.1.2-2C (Unit 3)

and 3.1.2-3A (Unit 1) 3.1.2-3B (Unit 2) 3.1.2-3C (Unit 3)

and Technical Specification 3.1.2.1, 3.1.2.2 and 3.1.2.3 shall be updated for the next service period in accordance with 10 CFR 50, Appendix G, Section V.B.

3.1.2.7 The updated proposed technical specification referred to in 3.1.2.6 shall be submitted for NRC review at least 90 days prior to the end of the service period for Units 1, 2, and 3.

Amendments Nos. 107, 107, & 104

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Bases - Units 1, 2, and 3

All components in the Reactor Coolant System are designed to withstand the effects of cyclic loads due to system temperature and pressure changes. These cyclic loads are introduced by normal load transients, reactor trips, startup and shutdown operations, and inservice leak and hydrostatic tests. The various categories of load cycles used for design purposes are provided in Table 4.8 of the FSAR.

The major components of the reactor coolant pressure boundary have been analyzed in accordance with Appendix G to 10 CFR 50. Results of this analysis, including the actual pressure-temperature limitations of the reactor coolant pressure boundary, are given in BAW-1699 and BAW-1697.

Because the material behavior is conservatively predictable and the similarity between Oconee Unit 1 and Oconee Units 2 and 3 in the areas of reactor vessel construction materials, RVMSP capsule contents, capsule irradiation history, plant operation and fuel management, the operating limits for Oconee Unit 1 have been extended through 15 EFPY based on the surveillance capsule evaluations of Oconee Units 2 and 3.

The Figures specified in 3.1.2.1, 3.1.2.2 and 3.1.2.3 present the pressuretemperature limit curves for normal heatup, normal cooldown and hydrostatic tests respectively. The limit curves are applicable up to the indicated effective full power years of operation. These curves are adjusted by 25 psi and 10°F for possible errors in the pressure and temperature sensing instruments. The pressure limit is also adjusted for the pressure differential between the point of system pressure measurement and the limiting component for all operating reactor coolant pump combinations.

The cooldown limit curves are not applicable to conditions of off-normal operation (e.g., small LOCA and extended loss of feedwater) where cooling is achieved for extended periods of time by circulating water from the HPI through the core. If core cooling is restricted to meet the cooldown limits under other than normal operation, core integrity could be jeopardized.

The pressure-temperature limit lines shown on the figures specified in 3.1.2.1 for reactor criticality and on the figures referred to in 3.1.2.3 for hydrostatic testing have been provided to assure compliance with the minimum temperature requirements of Appendix G to 10 CFR 50 for reactor criticality and for inservice hydrostatic testing.

The actual shift in RT_{NDT} of the beltline region material will be established periodically during operation by removing and evaluating, in accordance with Appendix H to 10 CFR 50, reactor vessel material irradiation surveillance specimens which are installed near the inside wall of this or a similar reactor vessel in the core region, or in test reactors.

The limitation on steam generator pressure and temperature provide protection against nonductile failure of the secondary side of the steam generator. At metal temperatures lower than the RT, of $+60^{\circ}$ F, the protection against nonductile failure is achieved by limiting the secondary coolant pressure to 20 percent of the preoperational system hydrostatic test pressure. The

Amendments Nos. 107, 107, & 104

3.1-4

limitations of 110°F and 237 psig are based on the highest estimated RT of +40°F and the preoperational system hydrostatic test pressure of 1312 psig. The average metal temperature is assumed to be equal to or greater than the coolant temperature. The limitations include margins of 25 psi and 10°F for possible instrument error.

The spray temperature difference is imposed to maintain the thermal stresses at the pressurized spray line nozzle below the design limit.

REFERENCES

- (1) Analysis of Capsule OCII-A from Duke Power Company Oconee Unit 2 Reactor Vessel Materials Surveillance Program, BAW-1699, December 1981.
- (2) Analysis of Capsule OCIII-B from Duke Power Company Oconee Unit 3 Reactor Vessel Materials Surveillance Program, BAW-1697, October 1981.

Amendments Nos. 107, 107, & 104

3.1-5

THE ACCEPTABLE PRESSURE AND TEMPERATURE CONSINATIONS ARE BELOW AND TO THE RIGHT OF THE LINIT CURVE. THE REACTOR MUST NOT BE MADE GRITICAL UNTIL THE PRESSURE-TEMPERATURE COMBINATIONS ARE TO THE RIGHT OF THE CRITICALITY LIMIT CURVE. MARSING OF 25 PEIS AND 10F ARE INCLUDED FOR POSSIBLE INSTRUMENT ERROR. I Roactor Coolant System Pressere, prig APPLICABLE FOR HEATUP RATES OF SIGN"F/HR (BO"F IN ANY 1/2 HOUR PERICO) 2500 (Loop ulth Pressurizer) 2000 TIGALITY LINIT 1500 POINT PRESSURE TEMPERATURE Ä 287 100 8 287 180 ĉ 1050 350 . 2250 415 1000 0 232 287 292 8 1060 390 445 2250 500 ۵ 0 100 200 300 489 580 680 708 - 888 Indicated Reactor Coolant System Temperature, Tc. .*F

Amendments Nos. 107, 107, & 104 3.1-6



OCONEE UNIT 1 REACTOR COOLANT SYSTEM NORMAL OPERATION-HEATUP LIMITATIONS APPLICABLE FOR FIRST 15.0 EFFECTIVE FULL POWER YEARS OCONEE NUCLEAR STATION Figure 3.1.2-1A

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Figure 3.1.2-13

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3.1-6a

Amendments Nos. 107, 107, & 104



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Amendments Nos. 107, 107, & 104



3.1-6b

i

3.1.2-10

Figure

OCONEE UNIT 3 REACTOR COOLANT SYSTEM NORMAL OPERATION HEATUP LIMITATIONS APPLICABLE FOR FIBST 15.0 HEPT. OCONEE NUCLEAR STATION



Amendments Nos. 107, 107, & 104

OCONEE UNIT 1 REACTOR COOLANT SYSTEM NORMAL OPERATION COOLDOWN LIMITATIONS APPLICABLE FOR FIRST 15.0 EFPY



3.1-7

OCONEE NUCLEAR STATION Figure 3.1.2-24



Amendments Nos. 107,

107. & 104 3.1-7a



OCONEE UNIT 2 REACTOR COOLANT SYSTEM NORMAL OPERATION COOLDOWN LIMITATIONS APPLICABLE FOR FIRST 15.0 EFPY OCONEE NUCLEAR STATION Figure 3.1.2-28



Amendments Nos. 107, 107, & 104 3.1-75



OCONEE UNIT 3 REACTOR COOLANT SYSTEM NORMAL OPERATION COOLDOWN LIMITATIONS APPLICABLE FOR FIRST 15.0 EFPY OCONEE NUCLEAR STATION Figure 3.1.2-2C



indicated Reactor Contant System Temperature, To "F

Amendments Nos. 107, 107, & 104 3.1-7c



OCONEE UNIT 1 REACTOR COOLANT SYSTEM INSERVICE LEAK AND HYDROSTATIC TEST HEATUP AND COOLDOWN LIMITATION APPLICABLE FOR FIRST 15.0 EFFECTIVE FULL POWER YEARS OCONEE NUCLEAR STATION

Figure 3.1.2-3A



Amendments Nos. 107, 107, & 104



3.1-7d

OCONEE UNIT 2 REACTOR COOLANT SYSTEM INSERVICE LEAK AND HYDRO-STATIC TEST HEATUP AND COOLDOWN LIMITATIONS APPLICABLE FOR FIRST 15.0 EFFT

OCONEE NUCLEAR STATION Figure 3.1.2-3B



OCONEE UNIT 3 REACTOR COOLANT SYSTEM INSERVICE LEAK AND HYDROSTATIC TEST HEATUP. AND COOLDOWN LIMITATIONS APPLICABLE FOR FIRST 15.0 EFPY

OCONEE NUCLEAR STATION Figure 3.1.2-30

Amendments Nos. 107, 107, & 104

3.1-7e

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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION SUPPORTING AMENDMENT NO. 107 TO FACILITY OPERATING LICENSE NO. DPR-38

AMENDMENT NO. 107 TO FACILITY OPERATING LICENSE NO. DPR-47

AMENDMENT NO. 104 TO FACILITY OPERATING LICENSE NO. DPR-55

DUKE POWER COMPANY

OCONEE NUCLEAR STATION, UNITS NOS. 1, 2 AND 3

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

Introduction

By letter dated January 12, 1982, Duke Power Company (Duke or the licensee) submitted an application to revise the normal operation heatup and cooldown limitations and the inservice testing heatup and cooldown limitations for the Oconee Nuclear Station, Units 1, 2 and 3 (ONS 1, 2 and 3). The existing Technical Specifications (TSs) contain Figures indicating the allowable pressure/temperature relationships for heatups and cooldowns which are stated to be applicable for the first 6, 5 and 5 effective full power years (EFPY) for the ONS 1, 2 and 3 respectively. As of January 1, 1982, the reactor vessel service life was 5.08, 4.82 and 4.36 EFPY for the ONS 1, 2 and 3 respectively. The proposed Figures are to be applicable for the first 15 EFPY for each ONS Unit.

Background

The pressure/temperature relationships for heatup and cooldown are based on minimizing the cyclic loads to the reactor coolant system for both normal operation and inservice leak and hydrostatic testing. During power operation of the reactor, the fracture toughness properties of the ferritic materials in the reactor vessel change, due to neutron flux exposure. These changes affect the nil-ductility reference temperature, RT_{NDT} , which is evaluated to ascertain the condition of the reactor yessel. The actual shift in RT_{NDT} is required to be determined periodically, in accordance with TS 4.2.4, by removal of reactor vessel material irradiation surveillance specimens which are installed near the inside wall of a similar reactor yessel. Surveillance specimens for the ONS 2 and 3 were recently removed and evaluated; the results of which were used by Duke to establish revised heatup and cooldown limitations for the ONS 1, 2 and 3.

Evaluation

We have performed a review of the proposed changes to the pressure/temperature limitation curves and have found them to be more conservative (higher

temperatures required for given pressures) than the existing limitations, and the results of surveillance capsule analysis show less fast fluence dose than analytically predicted for the corresponding EFPY.

Therefore, we have concluded that since the proposed revisions require more conservative operation for heatup and cooldown than the present limitations, operation of the ONS 1, 2 and 3 under the proposed limitations is acceptable.

Environmental Consideration

We have determined that the amendments do not authorize a change in effluent types or total amounts nor an increase in power level and will not result in any significant environmental impact. Having made this determination, we have further concluded that the amendments involve an action which is insignificant from the standpoint of environmental impact and, pursuant to 10 CFR 51.5(d)(4), that an environmental impact statement, or negative declaration and environmental impact appraisal need not be prepared in connection with the issuance of these amendments.

Conclusion

We have concluded, based on the considerations discussed above, that: (1) because the amendments do not involve a significant increase in the probability or consequences of accidents previously considered and do not involve a significant decrease in a safety margin, the amendments do 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.

The following NRC staff personnel have contributed to this Safety Evaluation: Philip C. Wagner

Dated: February 22, 1982

UNITED STATES NUCLEAR REGULATORY COMMISSION DOCKETS NOS. 50-269, 50-270 AND 50-287

DUKE POWER COMPANY

NOTICE OF ISSUANCE OF AMENDMENTS TO FACILITY OPERATING LICENSES

The U. S. Nuclear Regulatory Commission (the Commission) has issued Amendments Nos. 107, 107 and 104 to Facility Operating Licenses Nos. DPR-38, DPR-47 and DPR-55, respectively, issued to Duke Power Company, which revised the Technical Specifications (TSs) for operation of the Oconee Nuclear Station, Units Nos. 1, 2 and 3, located in Oconee County, South Carolina. The amendments are effective as of the date of issuance.

These amendments revise the TS requirements concerning heatup, cooldown and inservice testing limitations for the reactor coolant system.

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 was not required since the amendments do not involve a significant hazards consideration.

The Commission has determined that the issuance of these amendments will not result in any significant environmental impact and that pursuant to 10 CFR Section 51.5(d)(4) an environmental impact statement or negative declaration and environmental impact appraisal need not be prepared in connection with the issuance of these amendments.

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For further details with respect to this action, see (1) the application for amendments dated January 12, 1982, (2) Amendments Nos. 107, 107, and 104 to Licenses Nos. DPR-38, DPR-47 and DPR-55, respectively, 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, N. W., Washington, D. C. and at the Oconee County Library, 501 West Southbroad 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 Licensing.

-2-

Dated at Bethesda, Maryland, this 22nd day of February 1982.

FOR THE NUCLEAR REGULATORY COMMISSION

John F. Stolz, Chief Operating Reactors Branch^{*}#4 Division of Licensing