

March 20, 2002

Mr. William R. McCollum, Jr.  
Vice President, Oconee Site  
Duke Energy Corporation  
7800 Rochester Highway  
Seneca, SC 29672

SUBJECT: OCONEE NUCLEAR STATION, UNITS 1, 2 AND 3 RE: ISSUANCE OF  
AMENDMENTS (TAC NOS. MB1650, MB1651 AND MB1652)

Dear Mr. McCollum:

The Nuclear Regulatory Commission has issued the enclosed Amendment Nos. 322 , 322, and 323 to Renewed 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 in response to your application dated March 29, 2001.

The amendments remove the NOTE that had temporarily waived the upper limits of TS 3.8.1.9; thus, these amendments restore the original requirements of Surveillance Requirement 3.8.1.9. In addition, these amendments reduce the time delay specified in TS 3.8.1.17 from 12 seconds to 5 seconds. These amendments will be implemented when the digital governor modifications have been implemented on both Keowee Hydroelectric Units.

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,

**/RA/**

Leonard N. Olshan, Senior Project Manager, Section 1  
Project Directorate II  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

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

Enclosures:

1. Amendment No. 322 to DPR-38
2. Amendment No. 322 to DPR-47
3. Amendment No. 323 to DPR-55
4. Safety Evaluation

cc w/encls: See next page

March 20, 2002

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Document Name: C:\Program Files\Adobe\Acrobat 4.0\PDF Output\MB1650amd.wpd \*\*See previous concurrence

Accession Number: \*No major changes to SE.

OFFICE	PDII-1/PM	PDII-1/LA	OGC**	SC:EEIB*	PDII-1/(A)SC
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DATE	03/19/02	03/19/02	3/11/02	2/5/02	03/19/02

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DUKE ENERGY CORPORATION

DOCKET NO. 50-269

OCONEE NUCLEAR STATION, UNIT 1

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 322  
Renewed 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) Renewed Facility Operating License No. DPR-38 filed by the Duke Energy Corporation (the licensee) dated March 29, 2001, 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 Renewed Facility Operating License No. DPR-38 is hereby amended to read as follows:

B. Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 322, 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 completion of the digital governor modifications on both Keowee Hydroelectric Units and shall be implemented within 30 days of the date of completion of such modifications, but no later than April 30, 2005.

FOR THE NUCLEAR REGULATORY COMMISSION

**/RA/**

Richard J. Laufer, Acting Chief, Section 1  
Project Directorate II  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Attachment:  
Technical Specification  
Changes

Date of Issuance: March 20, 2002

DUKE ENERGY CORPORATION

DOCKET NO. 50-270

OCONEE NUCLEAR STATION, UNIT 2

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 322  
Renewed 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) Renewed Facility Operating License No. DPR-47 filed by the Duke Energy Corporation (the licensee) dated March 29, 2001, 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 Renewed Facility Operating License No. DPR-47 is hereby amended to read as follows:

B. Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 322, 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 completion of the digital governor modifications on both Keowee Hydroelectric Units and shall be implemented within 30 days of the date of completion of such modifications, but no later than April 30, 2005.

FOR THE NUCLEAR REGULATORY COMMISSION

***/RA/***

Richard J. Laufer, Acting Chief, Section 1  
Project Directorate II  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Attachment:  
Technical Specification  
Changes

Date of Issuance: March 20, 2002

DUKE ENERGY CORPORATION

DOCKET NO. 50-287

OCONEE NUCLEAR STATION, UNIT 3

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 323  
Renewed 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) Renewed Facility Operating License No. DPR-55 filed by the Duke Energy Corporation (the licensee) dated March 29, 2001, 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 Renewed Facility Operating License No. DPR-55 is hereby amended to read as follows:

B. Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 323, 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 completion of the digital governor modifications on both Keowee Hydroelectric Units and shall be implemented within 30 days of the date of completion of such modifications, but no later than April 30, 2005.

FOR THE NUCLEAR REGULATORY COMMISSION

**/RA/**

Richard J. Laufer, Acting Chief, Section 1  
Project Directorate II  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Attachment:  
Technical Specification  
Changes

Date of Issuance: March 20, 2002



ATTACHMENT TO LICENSE AMENDMENT NO. 322  
RENEWED FACILITY OPERATING LICENSE NO. DPR-38  
DOCKET NO. 50-269  
AND  
TO LICENSE AMENDMENT NO. 322  
RENEWED FACILITY OPERATING LICENSE NO. DPR-47  
DOCKET NO. 50-270  
AND  
TO LICENSE AMENDMENT NO. 323  
RENEWED FACILITY OPERATING LICENSE NO. DPR-55  
DOCKET NO. 50-287

Replace the following pages of the Appendix A Technical Specifications and associated Bases with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

Remove

3.8.1-15  
3.8.1-16  
3.8.1-17  
B 3.8.1-4  
B 3.8.1-5  
B 3.8.1-22  
B 3.8.1-25  
B 3.8.1-26

Insert

3.8.1-15  
3.8.1-16  
3.8.1-17  
B 3.8.1-4  
B 3.8.1-5  
B 3.8.1-22  
B 3.8.1-25  
B 3.8.1-26

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
RELATED TO  
AMENDMENT NO. 322 TO RENEWED FACILITY OPERATING LICENSE DPR-38  
AMENDMENT NO. 322 TO RENEWED FACILITY OPERATING LICENSE DPR-47  
AND AMENDMENT NO. 323 TO RENEWED FACILITY OPERATING LICENSE DPR-55  
DUKE ENERGY CORPORATION  
OCONEE NUCLEAR STATION, UNITS 1, 2, AND 3  
DOCKET NOS. 50-269, 50-270, AND 50-287

## 1.0 INTRODUCTION

By letter dated March 29, 2001, Duke Energy Corporation (the licensee), proposed license amendments to change the Technical Specifications (TS) for Oconee Nuclear Station, Units 1, 2 and 3. The proposed amendments remove a NOTE from TS 3.8.1 (AC Sources - Operating) Surveillance Requirement (SR) 3.8.1.9, and reduce the time delay allowable value requirement from SR 3.8.1.17 from 12 seconds to 5 seconds, while retaining the same  $\pm 1$  second tolerance. These SR changes will become effective when the Keowee Hydro Unit (KHU) digital governor modifications are implemented.

## 2.0 BACKGROUND

As currently installed, upon receipt of an emergency start signal, a KHU is started by admitting water to the turbine impeller. The speed of the generator on the impeller shaft increases, which increases the generated electrical frequency and voltage up to the required output. However, the controller characteristics of the mechanical-hydraulic KHU governor have caused the speed of the KHUs to increase above the rated speed after the required 23 seconds of the KHU start, which caused the generated electrical frequency to temporarily exceed the tolerances specified in SR 3.8.1.9. Following this temporary overshoot, the frequency returned to within the required limits.

Section 6.3.3.3 of the Oconee Updated Final Safety Analysis Report (UFSAR) states that each KHU will achieve the rated frequency and voltage within 23 seconds of a start signal. The licensee developed a TS surveillance requirement (SR 3.8.1.9) to verify the response time of a KHU following receipt of an emergency start signal. The surveillance is performed to ensure engineered safeguards equipment will be supplied sufficient power to mitigate an accident. The test is performed by loading the KHUs on the grid, since the grid provides the only available

loads of sufficient magnitude to verify the ability of the KHUs to respond to accident-loading conditions. The requirement and acceptance criteria for SR 3.8.1.9 states:

Verify on an actual or simulated emergency actuation signal each KHU auto starts and:

- a. achieves frequency  $\geq 57$  Hz and  $\leq 63$  Hz and voltage  $\geq 13.5$  kV and  $\leq 14.49$  kV in  $\leq 23$  seconds; and
- b. supplies the equivalent of one Unit's maximum safeguard loads plus two Unit's hot shutdown loads when synchronized to system grid and loaded at maximum practical rate.

In discussions between the licensee and the NRC in late August 2000, it became clear that the staff and the licensee interpreted the acceptance criteria for successfully performing SR 3.8.1.9 differently. In the NRC staff's view, the frequency band acceptance criteria constitutes upper and lower limits for operation of a KHU, and must be maintained within those bands after the 23-second time limit. The licensee contended that the acceptance criteria were met if the frequency and voltage bands were obtained within 23 seconds of a KHU start, regardless of the ensuing performance characteristics.

Given the interpretation by the NRC of the upper frequency limits associated with the requirements of SR 3.8.1.9, and the overshoot characteristics of the KHUs, the licensee determined that SR 3.8.1.9 could not be met. Consequently, on the basis of the NRC interpretation, both KHUs were declared inoperable at 1440 hours on September 5, 2000, and the licensee requested a Notice of Enforcement Discretion, which the NRC granted at 1525 hours on September 5, 2000. The licensee subsequently submitted a license amendment request (LAR) on September 7, 2000, that added a note to SR 3.8.1.9 that allowed the upper limits of KHU voltage and frequency to not be met until the NRC approved an amendment that removed this note. The note further stated that the LAR would be submitted no later than April 5, 2001.

As part of the Oconee refurbishment program, the licensee planned to upgrade or refurbish the KHUs and their controls. One of these projects was the replacement of the existing mechanical-hydraulic governors with digital governors and support equipment. The licensee stated that digital governor modification will be designed to reduce the KHU frequency overshoot following startup to less than 5 percent. This is within the frequency limits specified in SR 3.8.1.9.

In October 2000, the licensee accelerated the schedule for replacing the governors and associated modifications. On the basis of the licensee's current schedule for modification package development and procurement lead time, the licensee estimated that the digital governor modification can be implemented on both KHUs by March 2004. The licensee requested a revision to SR 3.8.1.9 to remove the note that waives the requirement to meet the upper frequency and voltage limits in the SR. The note, however, will remain in effect until the KHU governor modifications are implemented, at which time the note will be removed by inserting the TS changes approved in this Safety Evaluation.

Additionally, the licensee committed to provide protection for out-of-tolerance voltage and frequency on the KHU generators to further improve the design in response to NRC concerns regarding the Oconee emergency power system. In response to these concerns, the licensee

proposed SR 3.8.1.17, which addressed testing and acceptance criteria for out-of-tolerance logic that would isolate a KHU generator from the emergency power supply bus if its voltage and frequency is not within prescribed limits. Because the licensee anticipates that the KHU digital governor implementation will improve the control of overshoot during KHU startups, the licensee requested a revision to SR 3.8.1.17 to reduce the preset time delay for activating the out-of-tolerance logic circuit from the existing 12 seconds  $\pm 1$  second to 5 seconds  $\pm 1$  second. The licensee will implement the out-of-tolerance logic concurrently with the implementation of the KHU digital governor modification.

### 3.0 EVALUATION

The licensee stated that the KHU governor implementation will be performed under the provisions of 10 CFR 50.59, Changes, Tests and Experiments. The staff, therefore, evaluated only the proposed TS changes in the licensee's submittal.

#### 3.1 TS 3.8.1, AC Sources - Operating, SR 3.8.1.9 Note

The note for SR 3.8.1.9 states:

The upper limits on KHU frequency and voltage are not required to be met until the NRC issues an amendment that removes this Note (license amendment request to be submitted no later than April 5, 2001).

As described in Section 2 of this Safety Evaluation, this note will remain in effect until the licensee upgrades the existing mechanical-hydraulic governors on the KHUs with digital governors. This digital upgrade project is expected to be completed in March 2004. On the basis of this plan for implementing this TS change, the staff finds the proposed removal of the note to be acceptable.

#### 3.2 TS 3.8.1, AC Sources - Operating, SR 3.8.1.17

The licensee proposed lowering the preset time delay for activating the out-of-tolerance logic from 12 seconds  $\pm 1$  second to a time delay of 5 seconds  $\pm 1$  second. The licensee stated the implementation of SR 3.8.1.17 in the TS had been delayed as a result of the KHU overshoot issue between the staff and the licensee.

The licensee stated that implementation of the digital governors in the KHUs will result in a scope change to the out-of-tolerance modification. The timer setpoint used in the out-of-tolerance logic will be decreased from 12 seconds  $\pm 1$  second to 5 seconds  $\pm 1$  second to reflect that the KHU overshoot with a digital governor installed is not expected to exceed the out-of-tolerance voltage and frequency set points. The staff finds the lower setpoint and setpoint tolerance of the timers provide improved protection without exposing the KHUS to spurious actuations, and are therefore, acceptable.

#### 3.3 TS Bases

The NRC staff reviewed the proposed TS Bases changes and find the changes consistent with the TS changes described above. The NRC staff, therefore, does not object to the proposed changes to the TS Bases.

#### 4.0 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.

#### 5.0 ENVIRONMENTAL CONSIDERATION

The amendments change requirements with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and 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 (66 FR 22029). 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.

#### 6.0 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: M. Waterman

Date: March 20, 2002

Oconee Nuclear Station

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