

February 26, 2002

Mr. G. R. Peterson  
Site Vice President  
Catawba Nuclear Station  
Duke Energy Corporation  
4800 Concord Road  
York, South Carolina 29745-9635

SUBJECT: CATAWBA NUCLEAR STATION, UNITS 1 AND 2 RE: ISSUANCE OF  
AMENDMENTS (TAC NOS. MB2727 AND MB2728)

Dear Mr. Peterson:

The Nuclear Regulatory Commission has issued the enclosed Amendment No. 195 to Facility Operating License NPF-35 and Amendment No. 188 to Facility Operating License NPF-52 for the Catawba Nuclear Station (CNS), Units 1 and 2. The amendments consist of changes to the Technical Specifications (TS) in response to your application dated August 6, 2001.

The amendments decrease the CNS Unit 1 Overtemperature Delta Temperature Allowable Value and the CNS Units 1 and 2 Overpower Delta Temperature Allowable Values in TS Table 3.3.1-1. In addition, the amendments correct two minor editorial changes in the TS Table of Contents and Bases Page 3.3.1-10.

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:

Chandu P. Patel, Project Manager, Section 1  
Project Directorate II  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Docket Nos. 50-413 and 50-414

Enclosures:

1. Amendment No. 195 to NPF-35
2. Amendment No. 188 to NPF-52
3. Safety Evaluation

cc w/encls: See next page

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- cc w/encls: See next page

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\*See previous concurrence

\*\*No major changes to SE ML020630352

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DUKE ENERGY CORPORATION  
NORTH CAROLINA ELECTRIC MEMBERSHIP CORPORATION  
SALUDA RIVER ELECTRIC COOPERATIVE, INC.  
DOCKET NO. 50-413  
CATAWBA NUCLEAR STATION, UNIT 1  
AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 195  
License No. NPF-35

1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment to the Catawba Nuclear Station, Unit 1 (the facility) Facility Operating License No. NPF-35 filed by the Duke Energy Corporation, acting for itself, North Carolina Electric Membership Corporation and Saluda River Electric Cooperative, Inc. (licensees), dated August 6, 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 2.C.(2) of Facility Operating License No. NPF-35 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 195 , which are attached hereto, are hereby incorporated into this license. Duke Energy Corporation shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of its date of issuance and shall be implemented within 30 days of issuance.

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: February 26, 2002

DUKE ENERGY CORPORATION  
NORTH CAROLINA MUNICIPAL POWER AGENCY NO. 1  
PIEDMONT MUNICIPAL POWER AGENCY  
DOCKET NO. 50-414  
CATAWBA NUCLEAR STATION, UNIT 2  
AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 188  
License No. NPF-52

1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment to the Catawba Nuclear Station, Unit 2 (the facility) Facility Operating License No. NPF-52 filed by the Duke Energy Corporation, acting for itself, North Carolina Municipal Power Agency No. 1 and Piedmont Municipal Power Agency (licensees), dated August 6, 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 2.C.(2) of Facility Operating License No. NPF-52 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 188 , which are attached hereto, are hereby incorporated into this license. Duke Energy Corporation shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of its date of issuance and shall be implemented within 30 days of issuance.

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: February 26, 2002

ATTACHMENT TO LICENSE AMENDMENT NO. 195

FACILITY OPERATING LICENSE NO. NPF-35

DOCKET NO. 50-413

AND LICENSE AMENDMENT NO. 188

FACILITY OPERATING LICENSE NO. NPF-52

DOCKET NO. 50-414

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

Remove

iii  
3.3.1-18  
3.3.1-19  
B 3.3.1-10

Insert

iii  
3.3.1-18  
3.3.1-19  
B 3.3.1-10

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
RELATED TO AMENDMENT NO. 195 TO FACILITY OPERATING LICENSE NPF-35  
AND AMENDMENT NO. 188 TO FACILITY OPERATING LICENSE NPF-52

DUKE ENERGY CORPORATION, ET AL.

CATAWBA NUCLEAR STATION, UNITS 1 AND 2

DOCKET NOS. 50-413 AND 50-414

## 1.0 INTRODUCTION

By letter dated August 6, 2001, Duke Energy Corporation, et al. (DEC, the licensee), submitted a request for changes to the Catawba Nuclear Station (CNS), Units 1 and 2, Technical Specifications (TS). The requested changes would revise Table 3.3.1-1 in TS 3.3.1, CNS Bases 3.3.1, and the CNS TS Table of Contents. TS Table 3.3.1-1 contains the requirements for the functions of the Reactor Trip System Instrumentation. The three changes proposed in these amendments are:

- a. Decrease the CNS Unit 1 Overtemperature Delta Temperature (OT $\Delta$ T) Allowable Value and the CNS Units 1 and 2 Overpower Delta Temperature (OP $\Delta$ T) Allowable Values in Table 3.3.1-1;
- b. Correct a misspelled word in the CNS TS Table of Contents; and
- c. Insert a missing section title header on CNS Bases Page 3.3.1-10.

## 2.0 EVALUATION

The proposed changes are described in detail below:

- a. The licensee has proposed to change the nominal trip setpoint notes that address allowable values for Items 6 and 7 in TS Table 3.3.1-1. Specifically, the licensee has proposed to decrease the OT $\Delta$ T Allowable Value for Unit 1 from 4.5 percent of rated thermal power (RTP) to 4.3 percent of RTP and the OP $\Delta$ T Allowable Values for Unit 1 from 3.0 percent of RTP to 2.6 percent of RTP. The OT $\Delta$ T Allowable Value for Unit 2 will remain at 4.5 percent of RTP and the OP $\Delta$ T Allowable Value for Unit 2 will be decreased from 3.3 percent of RTP to 3.1 percent of RTP. Each change results in increased conservatism.
- b. A misspelled word, "Tampering" will be changed to "Tempering" in Item 3.7.3 on Page iii of the TS Table of Contents.



- c. A missing section number and title, "3. Power Range Neutron Flux-High Positive Rate." will be inserted on Page 3.3.1-10 of the TS Bases.

## 2.1 Evaluation of Changes to OTΔT AND OPΔT Allowable Values

The uncertainty analysis calculations for the OTΔT and OPΔT setpoint instrument channels include a process-measurement allowance to account for the variation in the measurement of the hot leg temperature due to the temperature gradient which may exist in the hot leg (hot leg streaming phenomenon). This temperature gradient may result in the hot leg average temperature indication as determined by averaging the three hot leg resistance temperature device (RTD) indications, being different from the actual bulk hot leg temperature. The present allowance of 1.0 °F was calculated by Westinghouse and incorporated into the uncertainty analyses for delta-temperature and  $T_{avg}$  related allowances at the time of the RTD bypass removal modification. The uncertainty value of 1.0 °F resulted from the uncertainty calculations that used the approximately 9 °F temperature gradient in the hot leg at the time of the RTD bypass removal modification. Westinghouse had determined the present 1.0 °F hot leg streaming allowance for both Catawba and sister plant, McGuire, from the interpretation of test data taken during hot leg temperature gradient testing performed earlier at McGuire Unit 1.

In the interval since the temperature gradient testing was performed, core designs have changed. These changes have resulted in higher core peaking and some indications of increases in the hot leg temperature gradient. Hot leg temperature gradients as large as 14 °F have been seen at both Catawba and McGuire. The licensee performed an evaluation to determine whether the current hot leg streaming allowance of 1.0 °F was adequate in light of the increases in the hot leg temperature gradients. A change in this streaming allowance has the potential to impact the following five uncertainty calculations:

- OTΔT
- OPΔT
- Low  $T_{avg}$  (Feedwater Isolation)
- Reactor Coolant  $T_{avg}$  (Rod Control)
- Pressurizer Level Program

The licensee used historical plant data from both Catawba and McGuire to directly calculate the changes in the hot leg streaming and determine a new streaming uncertainty. The calculation was performed using the Duke setpoint uncertainty methodology and the plant data spanning several operating cycles. The plant data were used to back-calculate a hot leg temperature, which was then compared to the average of the three hot leg RTDs. The licensee found that the existing allowances in each of the above five uncertainty calculations contained sufficient margin to accommodate the increase in the hot leg streaming allowance, however, the calculations indicate that a hot leg streaming uncertainty allowance used to account for the hot leg streaming phenomenon should be increased from 1.0 to 1.21 °F. The increase in the hot leg streaming allowance in the uncertainty calculations results in a decrease in the Allowable Values for the OTΔT and OPΔT setpoints. The reduced Allowable Values are reflected in the proposed changes to Table 3.3.1-1.

For the Reactor Coolant  $T_{avg}$  and Pressurizer Level Program, the uncertainty allowances continue to remain bounding as the channel statistical allowance for these functions continues

to be within the total allowance assumed in the uncertainty analyses for these control systems. The decrease in the Allowable Values is a change in the conservative direction and will not adversely affect the steady-state or transient analyses documented in Chapter 15 of the Catawba Nuclear Station UFSAR. Since there is no increase in the total allowance applied to the setpoints used in the safety analyses, the applicable safety analyses remain bounding and valid. None of the analyses presented in Chapters 3, 4, or 6 are affected by this change. Therefore, the proposed change in the Allowable Values for the OTΔT and OPΔT setpoints will not result in a reduction of safety margin for these analyses.

On the basis of the above, the staff concludes that the changes proposed to Table 3.3.1-1 are acceptable.

## 2.2 Evaluation of the change to the TS Table of Contents

The correction the licensee proposes for the Catawba Table of Contents only corrects a misspelled word. This change is solely administrative in nature and, therefore, it is acceptable.

## 2.3 Evaluation of the Change to the Catawba Bases 3.3.1

The licensee discovered that the title header for; "3. Power Range Neutron Flux-High Positive Rate," was missing. This change inserts that missing title. The correction the licensee proposes for the Catawba Bases Page 3.3.1-10 is solely administrative in nature and, therefore, requires no technical evaluation.

## 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 requirements with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. 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 (67 FR 2920). 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: K. Mortensen

Date: February 26, 2002

Catawba Nuclear Station

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