July 21, 1995

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Mr. David L. Rehn
Vice President, Catawba Site
Duke Power Company
4800 Concord Road
York, SC 29745

SUBJECT: ISSUANCE OF AMENDMENTS - CATAWBA NUCLEAR STATION, UNITS 1 AND 2 TURBINE OVERSPEED PROTECTION (TAC NOS. M92095 AND M92096)

Dear Mr. Rehn:

The Nuclear Regulatory Commission has issued the enclosed Amendment No. 131 to Facility Operating License NPF-35 and Amendment No. 125 to Facility Operating License NPF-52 for the Catawba Nuclear Station, Units 1 and 2. The amendments consist of changes to the Technical Specifications (TS) in response to your application dated April 12, 1995.

The amendments delete TS 3/4.3.4, "Turbine Overspeed Protection," and its associated Bases. The deletion of TS 3/4.3.4 and its associated Bases provides Duke Power Company the flexibility to implement the manufacturer's recommendations for turbine steam valve surveillance test requirements. These test requirements will be contained in the Selected Licensee Committments (SLC) Manual. The SLC Manual is Chapter 16 of the Updated Final Safety Analysis Report.

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,

/s/

Robert E. Martin, Senior Project Manager
Project Directorate II-2
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Docket Nos. 50-413 and 50-414

Enclosures:
1. Amendment No. 131 to NPF-35
2. Amendment No. 125 to NPF-52
3. Safety Evaluation

cc w/encl: See next page

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

July 21, 1995

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

DUKE POWER COMPANY

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. 131
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 Power Company, acting for itself, North Carolina Electric Membership Corporation and Saluda River Electric Cooperative, Inc. (licensees), dated April 12, 1995, 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:

   Technical Specifications

   The Technical Specifications contained in Appendix A, as revised through Amendment No. 131 , and the Environmental Protection Plan contained in Appendix B, both of which are attached hereto, are hereby incorporated into this license. Duke Power Company shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

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

FOR THE NUCLEAR REGULATORY COMMISSION

Herbert N. Berkow, Director
Project Directorate II-2
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Attachment:
Technical Specification
Changes

Date of Issuance: July 21, 1995

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

DUKE POWER COMPANY

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. 125
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 Power Company, acting for itself, North Carolina Municipal Power Agency No. 1 and Piedmont Municipal Power Agency (licensees), dated April 12, 1995, 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:

Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 125 , and the Environmental Protection Plan contained in Appendix B, both of which are attached hereto, are hereby incorporated into this license. Duke Power Company shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

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

FOR THE NUCLEAR REGULATORY COMMISSION

Herbert N. Berkow

Herbert N. Berkow, Director
Project Directorate II-2
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Attachment:
Technical Specification
Changes

Date of Issuance: July 21, 1995

ATTACHMENT TO LICENSE AMENDMENT NO. 131

FACILITY OPERATING LICENSE NO. NPF-35

DOCKET NO. 50-413

AND

TO LICENSE AMENDMENT NO. 125

FACILITY OPERATING LICENSE NO. NPF-52

DOCKET NO. 50-414

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

Remove Pages	Insert Pages
VI	VI
XII	XII
3/4 3-87	3/4 3-87
B 3/4 3-7	B 3/4 3-7

LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS

BASES

3/4.3.4 (Deleted)

3/4.3.3.11 BORON DILUTION MITIGATION SYSTEM

The operability of the Boron Dilution Mitigation System ensures that protection against a loss of shutdown margin from a boron dilution event is present. This system uses two source range detectors to monitor the subcritical multiplication of the reactor core. An alarm setpoint is continually calculated as 4 times the lowest measured count rate, including compensation for background and the statistical variation in the count rate. Once the alarm setpoint is exceeded, each train of the Boron Dilution Mitigation System will automatically shut off both Reactor Makeup Water Pumps, isolate flow to the charging pumps from the Volume Control Tank, and align the suction of the charging pumps to highly borated water from the RWST. These actions automatically isolate the potential sources of diluted water and allow injection of highly borated water into the Reactor Coolant System.

In the event that the Boron Dilution Mitigation System is inoperable or not operating, the Source Range Neutron Flux Monitors may be used to provide protection against a loss of shutdown margin from a boron dilution event. If the Source Range Neutron Flux Monitors are used to monitor the subcritical multiplication of the reactor core, the alarm setpoint must be calibrated and periodically checked to ensure that it is less than or equal to one-half decade above the steady-state count rate. In addition, the flow from the Reactor Makeup Water Pumps must be verified as below specified limits. These actions ensure that adequate time is available for the operator to recognize and terminate a dilution event prior to a loss of shutdown margin.

3/4.3.4 Deleted

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 131 TO FACILITY OPERATING LICENSE NPF-35

AND AMENDMENT NO. 125 TO FACILITY OPERATING LICENSE NPF-52

DUKE POWER COMPANY, ET AL.

CATAWBA NUCLEAR STATION, UNITS 1 AND 2

DOCKET NOS. 50-413 AND 50-414

1.0 INTRODUCTION

By letter dated April 12, 1995, Duke Power Company et al. (the licensee or DPC) submitted a request for changes to the Catawba Nuclear Station, Units 1 and 2, Technical Specifications (TS). The requested changes would delete TS 3/4.3.4, "Turbine Overspeed Protection," and its associated Bases. The deletion of TS 3/4.3.4 would provide the licensee with the flexibility to make changes to turbine steam valve surveillance test requirements subject to the concurrence of the turbine manufacturer. Surveillance test requirements for the turbine steam valves based on the manufacturer's recommendations would be contained in the Selected Licensee Commitment (SLC) Manual which is Chapter 16 of the Updated Final Safety Analysis Report.

Section 182a of the Atomic Energy Act, as amended (the "Act"), requires that applicants for nuclear power plant operating licenses incorporates TS as a part of the license. The Commission's regulatory requirements related to the content of the TS are set forth in 10 CFR 50.36. That regulation requires that the TS include items in five specific categories, including (1) safety limits, limiting safety system settings and limiting control settings; (2) limiting conditions for operation; (3) surveillance requirements; (4) design features; and (5) administrative controls and states also that the Commission may include such additional TS as it finds to be appropriate. However, the regulation does not specify the particular TS to be included in a plant's license.

The Commission has provided guidance for the contents of the TS in its "Final Policy Statement on Technical Specifications Improvements for Nuclear Power Reactors" ("Final Policy Statement"), 58 FR 39132 (July 22, 1993), in which the Commission indicated that compliance with the Final Policy Statement satisfies Section 182a of the Act. In particular, the Commission indicated that certain items could be relocated from the TS to licensee-controlled documents, consistent with the standard enunciated in *Portland General Electric Co.* (Trojan Nuclear Plant), ALAB-531, 9 NRC 263, 273 (1979). In that case, the Atomic Safety and Licensing Appeal Board indicated that "technical specifications are to be reserved for those matters as to which the imposition

of rigid conditions or limitations upon reactor operation is deemed necessary to obviate the possibility of an abnormal situation or event giving rise to an immediate threat to the public health and safety."

Consistent with this approach, the Final Policy Statement identified four criteria to be used in determining whether a particular matter is required to be included in the TS, as follows: (1) Installed instrumentation that is used to detect, and indicate in the control room, a significant abnormal degradation of the reactor coolant pressure boundary; (2) A process variable, design feature, or operating restriction that is an initial condition of a Design Basis Accident or Transient analysis that either assumes the failure of or presents a challenge to the integrity of a fission product barrier; (3) A structure, system, or component that is part of the primary success path and which functions or actuates to mitigate a Design Basis Accident or Transient that either assumes the failure of or presents a challenge to the integrity of a fission product barrier; (4) A structure, system, or component which operating experience or probabilistic safety assessment has shown to be significant to public health and safety.[1] As a result, existing Limiting Condition for Operation (LCO) requirements which fall within or satisfy any of the criteria in the Final Policy Statement must be retained in the TS, while those LCO requirements which do not fall within or satisfy these criteria may be relocated to other, licensee-controlled documents.

2.0 EVALUATION

2.1 License Condition 2.C.(9)

License Condition 2.C.(9), "Turbine Missiles," of Catawba, Unit 1, Facility Operating License NPF-35 required DPC to submit for NRC approval, by December 6, 1987, a turbine system maintenance program based on the manufacturer's calculations of missile generation probabilities.

DPC responded by letter dated April 24, 1986. The program submitted by DPC is based on the results of a probabilistic evaluation of low pressure turbines performed by the General Electric Company (GE). GE used the methodology of their proprietary report, "Probability of Missile Generation in General Electric Nuclear Turbines," dated January 1984 to perform this evaluation. By letter dated June 2, 1987, the NRC staff stated that it had reviewed the licensee's turbine system maintenance program and had concluded that the licensee's calculated missile generation probabilities were within the required value. Although not stated in the staff's June 2, 1987 letter, this conclusion satisfied the requirements of License Condition 2.C.(9).

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[1] The Commission recently promulgated a proposed change to 10 CFR 50.36, pursuant to which the rule would be amended to codify and incorporate these criteria (59 FR 48180, September 20, 1994). The Commission's Final Policy Statement specified that the Reactor Core Isolation Cooling, Isolation Condenser, Residual Heat Removal, Standby Liquid Control, and Recirculation Pump Trip are included in the TS under Criterion 4 (58 FR 39132, July 22, 1993).

2.2 TS 3/4.3.4

The Catawba turbine generators have several sets of steam valves to control turbine speed during normal operation and to protect them from overspeed during abnormal operations. These valves are the four high pressure Turbine Control Valves, the four high pressure Turbine Stop Valves, six low pressure turbine intermediate stop valves, and six low pressure turbine intercept valves all of which are controlled during normal operation by the turbine Electrohydraulic Control (EHC) System.

The Turbine Overspeed Protection System consists of separate mechanical and electrical sensing mechanisms each capable of independently initiating fast closure of the turbine steam valves during abnormal conditions. The mechanical overspeed trip will actuate to trip the turbine and initiate fast closure of the turbine steam valves at 110 percent of rated speed. The electrical overspeed trip (also called the backup overspeed trip) provides an additional overspeed trip and additional overspeed protection since it will actuate at 111.5 percent of rated speed.

TS 3/4.3.4 requires at least one Turbine Overspeed Protection System to be OPERABLE in OPERATIONAL CONDITIONS 1, 2 and 3 and provides surveillance requirements for periodic testing and inspection of the turbine steam valves. The surveillance requirements include weekly cycling of each of the valves through at least one complete cycle. Cycling of the valves introduces the potential for causing plant transients which are detrimental to plant safety.

In its submittal of April 12, 1995, DPC proposed that TS 3/4.3.4 and its associated Bases be deleted. The proposed change would also relocate the surveillance requirements to the Catawba Updated Final Safety Analysis Report. Changes to the relocated surveillance requirements would be subject to the manufacturer's concurrence. This will permit DPC to optimize testing and inspection frequencies such that unnecessary testing and inspections will be reduced. Reduction of unnecessary testing and inspections will assist in reducing plant transients and may thereby enhance safety.

A favorable turbine orientation exists at Catawba. The centerline of the reactor building is parallel to and slightly offset from the longest axis of the turbine generator. The potential effects of turbine missiles were evaluated in Section 3.5.1.3 of NUREG-0954, "Safety Evaluation Report Related to the Operation of the Catawba Nuclear Station, Units 1 and 2."

The NRC staff also notes that the proposed deletion of TS 3/4.3.4 would make the Catawba TS consistent with the guidance provided in the NRC's Standard Technical Specifications, Westinghouse Plants (NUREG-1431), in that the NRC's Standard Technical Specifications do not include TS requiring the operability of a Turbine Overspeed Protection System.

The licensee has proposed changes to TS 3/4.3.4 to remove the requirements related to the operability of the turbine overspeed controls, and related surveillance requirements. In the amendment application, the licensee

committed to include the surveillance program in Chapter 16, Selected Licensee Commitment Manual, of the Updated Final Safety Analysis Report (UFSAR).

The turbine is equipped with control valves and stop valves which control turbine speed during normal plant operation and protect it from overspeed during abnormal conditions. The turbine overspeed protection system consists of separate mechanical and electrical sensing mechanisms which are capable of initiating fast closure of the steam valves. Currently, TS 3/4.3.4 requires particular operability and surveillance requirements for these steam control and stop valves to minimize the potential for fragment missiles that might be generated as the result of a turbine overspeed event. The licensee has proposed to relocate these provisions to the UFSAR such that future changes to the operation and surveillance of the turbine overspeed features could be changed under 10 CFR 50.59.

Although the design basis accidents and transients include a variety of system failures and conditions which might result from turbine missiles striking various plant systems and equipment, system failures and plant conditions could be caused by other events as well as turbine failures. In view of the low likelihood of turbine missiles this scenario does not constitute a part of the primary success path to prevent or mitigate such design basis accidents and transients. Similarly, the turbine overspeed control is not part of an initial condition of a design basis accident or transient that either assumes the failure of or presents a challenge to the integrity of a fission product barrier.

Probabilistic safety assessments and operating experience have demonstrated that proper maintenance of the turbine overspeed control valves is important to minimize the potential for overspeed events and turbine damage; however that experience has also demonstrated that there is low likelihood of significant risk to public health and safety because of turbine overspeed events. Further, the potential for and consequences of turbine overspeed events are diminished by the favorable orientation of the turbine, relative to the likely path of any turbine missiles, and the licensee's inservice inspection program, which must comply with 10 CFR 50.55(a), and a surveillance program for the turbine control and stop valves that is subject to the concurrence of the manufacturer.

Accordingly, the staff concluded that the requirements for turbine overspeed controls do not meet the TS criteria in the Final Policy Statement. The limiting conditions for operation and surveillance requirements for turbine overspeed controls were removed from the standard technical specifications.

On this basis, the staff concludes that these requirements are not required to be in the TS under 10 CFR 50.36 or Section 182a of the Act, and are not required in order to provide adequate protection to the health and safety of the public. Further, they do not fall within any of the four criteria set forth in the Commission's Final Policy Statement, discussed above. In addition, the NRC staff finds that sufficient regulatory controls exist under

10 CFR 50.59 to ensure that future changes to these requirements are acceptable. Accordingly, the staff has concluded that these requirements may be relocated from the TS to the UFSAR.

The NRC staff has no objection to the deletion of the Bases associated with TS 3/4.3.4.

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 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 (60 FR32361/June 21, 1995). 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: Robert E. Martin

Date: July 21, 1995