March 3, 1992

Docket Nos. 50-413
and 50-414

Distribution
See next page

Mr. M. S. Tuckman
Vice President, Catawba Site
Duke Power Company
4800 Concord Road
York, South Carolina 29745

Dear Mr. Tuckman:

SUBJECT: ISSUANCE OF AMENDMENTS - CATAWBA NUCLEAR STATION, UNITS 1 AND 2 (TACS M81287 AND 81288)

The Nuclear Regulatory Commission has issued the enclosed Amendment No. 94 to Facility Operating License NPF-35 and Amendment No. 88 to Facility Operating License NPF-52 for the Catawba Nuclear Station, Units 1 and 2. The amendments consist of changes to the Technical Specifications (TSs) in response to your application dated August 6, 1991.

The amendments revise the maximum allowable combined flowrates for both reactor makeup water pumps for MODES 3-5 with one or both trains of the Boron Dilution Mitigation System inoperable. A restriction is also added for MODE 6 and certain administrative changes are also made.

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:

Robert E. Martin, Senior Project Manager
Project Directorate II-3
Division of Reactor Projects I/II
Office of Nuclear Reactor Regulation

Enclosures:
1. Amendment No. 94 to NPF-35
2. Amendment No. 88 to NPF-52
3. Safety Evaluation

cc w/enclosures:
See next page

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

March 3, 1992

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and 50-414

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Vice President, Catawba Site
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Robert E Martin

Robert E. Martin, Senior Project Manager
Project Directorate II-3
Division of Reactor Projects I/II
Office of Nuclear Reactor Regulation

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cc w/enclosures:
See next page

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DATED: MARCH 3, 1992

AMENDMENT NO. 94 TO FACILITY OPERATING LICENSE NPF-35 - Catawba Nuclear Station, Unit 1

AMENDMENT NO. 88 TO FACILITY OPERATING LICENSE NPF-52 - Catawba Nuclear Station, Unit 2

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

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. 94
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 August 6, 1991, 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. 94 , 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.

FOR THE NUCLEAR REGULATORY COMMISSION

David B. Matthews, Director
Project Directorate II-3
Division of Reactor Projects-I/II
Office of Nuclear Reactor Regulation

Attachment:
Technical Specification
Changes

Date of Issuance: March 3, 1992

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

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. 88
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 August 6, 1991, 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. 88 , 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.

FOR THE NUCLEAR REGULATORY COMMISSION

David B. Matthews, Director
Project Directorate II-3
Division of Reactor Projects-I/II
Office of Nuclear Reactor Regulation

Attachment:
Technical Specification
Changes

Date of Issuance: March 3, 1992

ATTACHMENT TO LICENSE AMENDMENT NO. 94

FACILITY OPERATING LICENSE NO. NPF-35

DOCKET NO. 50-413

AND

TO LICENSE AMENDMENT NO. 88

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
3/4 3-92a	3/4 3-92a
3/4 3-92b	3/4 3-92b
3/4 9-1a	3/4 9-1a
3/4 9-1b	3/4 9-1b

INSTRUMENTATION

BORON DILUTION MITIGATION SYSTEM

LIMITING CONDITION FOR OPERATION

3.3.3.12 As a minimum, two trains of the Boron Dilution Mitigation System shall be OPERABLE and operating with Shutdown Margin Alarm ratios set at less than or equal to 4 times the steady-state count rate.

APPLICABILITY: MODES 3, 4, AND 5

ACTION:

(a) With one train of the Boron Dilution Mitigation System inoperable or not operating, restore the inoperable train to OPERABLE status within 48 hours, or

(1) suspend all operations involving positive reactivity changes and verify that valve NV-230 is closed and secured within the next hour, or

(2) verify two Source Range Neutron Flux Monitors are OPERABLE with Alarm Setpoints less than or equal to one-half decade (square root of 10) above the steady-state count rate and verify that the combined flowrate from both Reactor Makeup Water Pumps is less than or equal to 150 gpm (Mode 3 or 4) or 75 gpm (Mode 5) within the next hour.

(b) With both trains of the Boron Dilution Mitigation System inoperable or not operating, restore the inoperable trains to OPERABLE status within 12 hours, or

(1) suspend all operations involving positive reactivity changes and verify that valve NV-230 is closed and secured within the next hour, or

(2) verify two Source Range Neutron Flux Monitors are OPERABLE with Alarm Setpoints less than or equal to one-half decade (square root of 10) above the steady-state count rate and verify that the combined flow rate from both Reactor Makeup Water Pumps is less than or equal to 150 gpm (Mode 3 or 4) or 75 gpm (Mode 5) within the next hour.

SURVEILLANCE REQUIREMENTS

4.3.3.12.1 Each train of the Boron Dilution Mitigation System shall be demonstrated OPERABLE by performance of:

(a) A CHANNEL CHECK at least once per 12 hours,

SURVEILLANCE REQUIREMENTS (Continued)

(b) An ANALOG CHANNEL OPERATIONAL TEST at least once per 31 days, and

(c) At least once per 18 months the BDMS shall be demonstrated OPERABLE by:

(1) Verifying that each automatic valve actuated by the BDMS moves to its correct position upon receipt of a trip signal, and

(2) Verifying each reactor makeup water pump stops, as designed, upon receipt of a trip signal.

4.3.3.12.2 If using the Source Range Neutron Flux Monitors to meet the requirements of Technical Specification 3.3.3.12,

(a) The monthly surveillance requirements of Table 4.3-1 for the Source Range Neutron Flux Monitors shall include verification that the Alarm Setpoint is less than or equal to one-half decade (square root of 10) above the steady-state count rate.

(b) The combined flow rate from both Reactor Makeup Water Pumps shall be verified as less than or equal to 150 gpm (Mode 3 or 4) or 75 gpm (Mode 5) at least once per 31 days.

REFUELING OPERATIONS

3/4.9.2 INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.9.2.1 As a minimum, two trains of the Boron Dilution Mitigation System shall be OPERABLE and operating with Shutdown Margin Alarm Ratios set at less than or equal to 4 times the steady-state count rate, each with continuous indication in the control room.

APPLICABILITY: MODE 6

ACTION:

(a) With one or both trains of the Boron Dilution Mitigation System inoperable or not operating,

(1) immediately suspend all operations involving CORE ALTERATIONS or positive reactivity changes, and verify that valve NV-230 is closed and secured within the next hour or

(2) verify that two Source Range Neutron Flux Monitors are OPERABLE and operating with Alarm Setpoints less than or equal to one-half decade (square root of 10) above the steady-state count rate, each with continuous visual indication in the control room and one with audible indication in the control room and one with audible indication in the containment and verify that the combined flowrate from both Reactor Makeup Water Pumps is less than or equal to 70 gpm within the next hour.

(b) With both trains of the Boron Dilution Mitigation System inoperable or not operating and one of the Source Range Neutron Flux Monitors inoperable or not operating immediately suspend all operations involving core ALTERATIONS or positive reactivity changes and verify that valve NV-230 is closed and secured within the next hour.

(c) With both trains of the Boron Dilution Mitigation System inoperable or not operating and both of the Source Range Neutron Flux Monitors inoperable or not operating, determine the boron concentration of the Reactor Coolant System at least once per 12 hours and verify that valve NV-230 is closed and secured within the next hour.

SURVEILLANCE REQUIREMENT

4.9.2.1.1 Each train of the Boron Dilution Mitigation System shall be demonstrated OPERABLE by performance of:

(a) A CHANNEL CHECK at least once per 12 hours,

(b) An ANALOG CHANNEL OPERATIONAL TEST within 8 hours prior to the initial start of CORE ALTERATIONS and

(c) An ANALOG CHANNEL OPERATIONAL TEST at least once per 31 days.

SURVEILLANCE REQUIREMENTS (CONTINUED)

(d) At least once per 18 months the BDMS shall be demonstrated OPERABLE by:

(1) Verifying that each automatic valve actuated by the BDMS moves to its correct position upon receipt of a trip signal, and

(2) Verifying each reactor makeup water pump stops, as designed, upon receipt of a trip signal.

4.9.2.1.2 If using the Source Range Neutron Flux Monitors to meet the requirements of Technical Specification 3.9.2, each Source Range Neutron Flux Monitor shall be demonstrated OPERABLE by performance of:

(a) A CHANNEL CHECK at least once per 12 hours,

(b) An ANALOG CHANNEL OPERATIONAL TEST within 8 hours prior to the initial start of CORE ALTERATIONS or within 1 hour after declaring the BORON DILUTION MITIGATION SYSTEM inoperable, and

(c) An ANALOG CHANNEL OPERATIONAL TEST at least once per 7 days.

(d) The combined flowrate from both Reactor Makeup Water Pumps shall be verified as less than or equal to 70 gpm at least once per 7 days.

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 94 TO FACILITY OPERATING LICENSE NPF-35

AND AMENDMENT NO. 88 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 August 6, 1991, the Duke Power Company (the licensee) submitted a request for changes to the Catawba Nuclear Station, Units 1 and 2, Technical Specifications (TS).

Catawba Units 1 and 2 are provided with a Boron Dilution Mitigation System (BDMS) which serves to detect uncontrolled boron dilution events in Modes 3-6 of plant operation. When an alarm setpoint is exceeded, each of the two trains of the BDMS will automatically shutoff both reactor makeup water pumps (RMWP), align the suction of the charging pumps to highly borated water from the refueling water storage tank, and isolate flow to the charging pumps from the volume control tank. Therefore, no operator action is necessary to terminate the boron dilution event and recover the shutdown margin.

When one or both trains of BDMS is operable in Modes 3-6, the current TS 3/4.3.3.12 and 3/4.9.2 define the limitation of the flow rate from the RMWP to values which have been calculated to allow sufficient operator action time to terminate the dilution prior to reactor criticality.

Based on a Westinghouse bulletin received by the licensee concerning potential nonconservatism in the existing boron dilution analysis, the licensee, in its letter dated August 6, 1991, proposed changes to TS on the new limitation of the flow rate from the RMWP as the results of a licensee's reanalysis of the boron dilution event.

2.0 EVALUATION

The licensee's submittal indicated that the previous analyses for Catawba did not take into acccount the difference in the fluid conditions of the reactor coolant system (RCS) relative to the dilution source conditions when determining the dilution flow rate. This resulted in nonconservative calculations of time from alarm to loss of shutdown margin, the applicable criterion for the boron dilution event.

In its reanalysis, the licensee has considered the temperature effects of the diluting water as it reaches the RCS. Since the diluting water is colder than the RCS inventory, the diluting water expands within the RCS. This expansion causes a given volumetric flow rate measured at the colder temperature to correspond to a larger volumetric dilution flow rate within the RCS. This temperature effect was not accounted for in the original analysis. This reduced the maximum allowable flow rate from the RMWPs from 200 gpm to 150 gpm for Mode 3 and from 80 gpm to 75 gpm for Mode 5. The original Mode 4 analysis had incorrectly used the Mode 5 and 6 minimum RCS water volume of 3588 ft^3 (reduced inventory operation) instead of the correct Mode 4 value of 9029 ft^3. This change of assumption overshadowed the temperature difference correction and resulted in an increase in the maximum allowable flow rate from the RMWPs from 80 gpm to 150 gpm for Mode 4. Also, to assure that the 30 minute operator action time for mitigation of a boron dilution event is available, the results of the licensee's reanalysis established a maximum allowable flow rate of 70 gpm from the RMWPs for Mode 6. The licensee has proposed changes to TS affected by the results of the reanalysis to incorporate the necessary changes in maximum allowable flow rate from the RMWPs.

The NRC staff has reviewed the licensee's submittal and concluded that the licensee's proposed changes to TS 3/4.3.3.12 and 3/4.9.2 are consistent with the results of their supporting analysis and therefore, are acceptable.

Other changes of an administrative nature have also been made as follows. Action (d) has been removed from TS 3.9.2.1 because the provision provided by it was included in the revised TS 3.0.4 in Amendment Nos. 48/41 pursuant to Generic Letter 87-09. The footnote in TS 3.3.3.12 and TS 3.9.2.1 referring to applicability after the first refueling outage of Unit 2 is extraneous since that milestone has been passed. The addition of the term "square root of 10" to TS 3.3.3.12 provides consistency with reference to the same parameters in TS 4.3.3.12 and 3.9.2.1. The removal of "3/4.3.3.12" from the title of the BDMS TS provides consistency with the titling of other TS. The spelling of the word "least" has been corrected in TS 4.9.2.1.2(c). These changes are administrative and clarifying in nature and are acceptable.

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 (56 FR 66919). 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: C. Liang, SRXB

Date: March 3, 1992