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

September 24, 1984

Docket No: 50-413

Mr. H. B. Tucker, Vice President
Nuclear Production Department
Duke Power Company
422 South Church Street
Charlotte, North Carolina 28242

Dear Mr. Tucker:

Subject: Issuance of Amendment No. 1 to Facility Operating License NPF-24 - Catawba Nuclear Station, Unit 1

The Nuclear Regulatory Commission has issued the enclosed Amendment No. 1 to Facility Operating License NPF-24 for the Catawba Nuclear Station, Unit 1. The amendment consists of changes to the Technical Specifications in response to your application dated July 31, 1984, and supplemented August 17, 24, and 29, 1984. The amendment is effective as of its date of issuance.

The amendment changes the Technical Specifications to modify the surveillance requirement acceptance criteria for the Auxiliary Feedwater pumps.

A copy of the related safety evaluation report supporting Amendment No. 1 to Facility Operating License NPF-24 is enclosed.

Sincerely,

Elinor G. Adensam

Elinor G. Adensam, Chief
Licensing Branch No. 4
Division of Licensing

Enclosures:
1. Amendment No. 1 to NPF-24
2. Safety Evaluation

cc w/encl:
See next page

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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. 1
License No. NPF-24

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-24 filed by the Duke Power Company, acting for itself, North Carolina Electric Membership Corporation and Saluda River Electric Cooperative, Inc., (licensees) dated July 31, 1984, and supplemented August 17, 24, and 29, 1984, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act) and the Commission's regulations as set forth in 10 CFR Chapter I;

   B. The facility will operate in conformity with the application, as amended, the provisions of the Act, and the 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 license amendment will not be inimical to the common defense and security or to the health and safety of the public;

   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 attachments to this license amendment and paragraph 2.C.(2) of Facility Operating License No. NPF-24 is hereby amended to read as follows:

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 1 , 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. The designated requirements of the following Technical Specifications in Appendix A are not applicable during fuel load and precritical operations:

(a)	T.S. 3.1.2.1	Boration Systems - Flow Path - Shutdown - OPERABLE emergency power source not required.
(b)	T.S. 3.1.2.3	Reactivity Control Systems - Charging Pump - Shutdown - OPERABLE emergency power source not required.
(c)	T.S. 3/4.3.2	Engineered Safety Features Actuation System Instrumentation - In Tables 3.3-3, 3.3-4 and 4.3-2, Items 1 (Safety Injection - Emergency Diesel Generator Operation), 15 (Emergency Diesel Generator Operation - Diesel Building Ventilation Operation, Nuclear Service Water Operation), and 17 (Diesel Building Ventilation Operation) are excepted. In Table 3.3-5, Items 2.a.9 (Emergency Diesel Generator Operation), 3.a.9 (Emergency Diesel Generator Operation), 4.a.9 (Emergency Diesel Generator Operation), and 13.d. (Emergency Diesel Generator Operation) as well as Notes (1) and (4) (Diesel generator starting and sequence loading delays included) for Response Times are excepted.
(d)	T.S. 3.7.1.2.a.	Auxiliary Feedwater System - capability of being powered from emergency buses not required.
(e)	T.S. 3.7.6 - ACTION b. for MODES 5 and 6.	Control Room Area Ventilation System - OPERABLE emergency power source not required.
(f)	T.S. 3.8.1.1.b., 4.8.1.1.2, 4.8.1.1.3, 4.8.1.1.4	A.C. Sources - Operating - OPERABLE diesel generators not required.
(g)	T.S. 3.8.1.2.b. and 4.8.1.2	A.C. Sources - Shutdown - OPERABLE diesel generator not required.

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

FOR THE NUCLEAR REGULATORY COMMISSION

Elinor G. Adensam

Elinor G. Adensam, Chief
Licensing Branch No. 4
Division of Licensing

Attachment:
Technical Specification
Changes

Date of Issuance: September 24, 1984

ATTACHMENT TO LICENSE AMENDMENT NO. 1

FACILITY OPERATING LICENSE NO. NPF-24

DOCKET NO. 50-413

Replace the following pages of the Appendix "A" Technical Specifications with the enclosed pages. The revised pages are identified by Amendment number and contain a vertical line indicating the area of change. The corresponding overleaf pages are also provided to maintain document completeness.

Amended Page	Overleaf Page
3/4 7-4	3/4 7-3
B3/4 7-2	B3/4 7-1

TABLE 3.7-2

STEAM LINE SAFETY VALVES PER LOOP

VALVE NUMBER	Loop A	Loop B	Loop C	Loop D	LIFT SETTING (± 1%)*	ORIFICE SIZE
1.	1SV-20	1SV-14	1SV-8	1SV-2	1175 psig	14.18 in.^{2}
2.	1SV-21	1SV-15	1SV-9	1SV-3	1190 psig	14.18 in.^{2}
3.	1SV-22	1SV-16	1SV-10	1SV-4	1205 psig	14.18 in.^{2}
4.	1SV-23	1SV-17	1SV-11	1SV-5	1220 psig	14.18 in.^{2}
5.	1SV-24	1SV-18	1SV-12	1SV-6	1230 psig	14.18 in.^{2}

*The lift setting pressure shall correspond to ambient conditions of the valve at nominal operating temperature and pressure.

AUXILIARY FEEDWATER SYSTEM

LIMITING CONDITION FOR OPERATION

3.7.1.2 At least three independent steam generator auxiliary feedwater pumps and associated flow paths shall be OPERABLE with:

a. Two motor-driven auxiliary feedwater pumps, each capable of being powered from separate emergency busses, and

b. One steam turbine-driven auxiliary feedwater pump capable of being powered from an OPERABLE steam supply system.

APPLICABILITY: MODES 1, 2, and 3.

ACTION:

a. With one auxiliary feedwater pump inoperable, restore the required auxiliary feedwater pumps to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.

b. With two auxiliary feedwater pumps inoperable, be in at least HOT STANDBY witin 6 hours and in HOT SHUTDOWN within the following 6 hours.

c. With three auxiliary feedwater pumps inoperable, immediately initiate corrective action to restore at least one auxiliary feedwater pump to OPERABLE status as soon as possible.

SURVEILLANCE REQUIREMENTS

4.7.1.2.1 Each auxiliary feedwater pump shall be demonstrated OPERABLE:

a. At least once per 31 days on a STAGGERED TEST BASIS by:

1) Verifying that each motor-driven pump develops a total dynamic head of greater than or equal to 3470 feet at a flow of greater than or equal to 400 gpm;

2) Verifying that the steam turbine-driven pump develops a total dynamic head of greater than or equal to 3550 feet at a flow of greater than or equal to 400 gpm when the secondary steam supply pressure is greater than 600 psig and the auxiliary feedwater pump turbine is operating at 3600 rpm. The provisions of Specification 4.0.4 are not applicable for entry into MODE 3;

3/4.7.1 TURBINE CYCLE

3/4.7.1.1 SAFETY VALVES

The OPERABILITY of the main steam line Code safety valves ensures that the Secondary System pressure will be limited to within 110% (1304 psig) of its design pressure of 1185 psig during the most severe anticipated system operational transient. The maximum relieving capacity is associated with a Turbine trip from valve wide-open condition coincident with an assumed loss of condenser heat sink (i.e., no steam bypass to the condenser).

The specified valve lift settings and relieving capacities are in accordance with the requirements of Section III of the ASME Boiler and Pressure Code, 1971 Edition. The total relieving capacity for all valves on all of the steam lines is 16.85×10^6 lbs/h which is 105% of the total secondary steam flow of 16.05×10^6 lbs/h at 100% RATED THERMAL POWER. A minimum of two OPERABLE safety valves per steam generator ensures that sufficient relieving capacity is available for the allowable THERMAL POWER restriction in Table 3.7-1.

STARTUP and/or POWER OPERATION is allowable with safety valves inoperable within the limitations of the ACTION requirements on the basis of the reduction in Secondary Coolant System steam flow and THERMAL POWER required by the reduced Reactor trip settings of the Power Range Neutron Flux channels. The Reactor Trip Setpoint reductions are derived on the following bases:

For four loop operation

$$SP = \frac{(X) - (Y)(V)}{X} \times (109)$$

Where:

SP = Reduced Reactor Trip Setpoint in percent of RATED THERMAL POWER,

V = Maximum number of inoperable safety valves per steam line,

109 = Power Range Neutron Flux-High Trip Setpoint for four loop operation,

X = Total relieving capacity of all safety valves per steam line in lbs/hour, and

Y = Maximum relieving capacity of any one safety valve in lbs/hour

3/4.7.1.2 AUXILIARY FEEDWATER SYSTEM

The OPERABILITY of the Auxiliary Feedwater System ensures that the Reactor Coolant System can be cooled down to less than 350°F from normal operating conditions in the event of a feedwater line break accident with a worst case single active failure.

The Auxiliary Feedwater System is capable of delivering a total feedwater flow of at least 492 gpm at a pressure of 1210 psig to the entrance of at least two of the steam generators. This capacity is sufficient to ensure that adequate feedwater flow is available to remove decay heat and reduce the Reactor Coolant System temperature to less than 350°F when the Residual Heat Removal System may be placed into operation.

3/4.7.1.3 SPECIFIC ACTIVITY

The limitations on Secondary Coolant System specific activity ensure that the resultant offsite radiation dose will be limited to a small fraction of 10 CFR Part 100 dose guideline values in the event of a steam line rupture. This dose also includes the effects of a coincident 1 gpm reactor to secondary tube leak in the steam generator of the affected steam line. These values are consistent with the assumptions used in the safety analyses.

3/4.7.1.4 MAIN STEAM LINE ISOLATION VALVES

The OPERABILITY of the main steam line isolation valves ensures that no more than one steam generator will blow down in the event of a steam line rupture. This restriction is required to: (1) minimize the positive reactivity effects of the Reactor Coolant System cooldown associated with the blowdown, and (2) limit the pressure rise within containment in the event the steam line rupture occurs within containment. The OPERABILITY of the main steam isolation valves within the closure times of the Surveillance Requirements are consistent with the assumptions used in the safety analyses.

3/4.7.2 STEAM GENERATOR PRESSURE/TEMPERATURE LIMITATION

The limitation on steam generator pressure and temperature ensures that the pressure-induced stresses in the steam generators do not exceed the maximum allowable fracture toughness stress limits. The limitations of 70°F and 200 psig are based on a steam generator RT_{NDT} of 10°F and are sufficient to prevent brittle fracture.

UNITED STATES
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WASHINGTON, D. C. 20555

SAFETY EVALUATION REPORT

RELATED TO AMENDMENT NO. 1 TO FACILITY OPERATING LICENSE NPF-24

CATAWBA NUCLEAR STATION, UNIT 1

DUKE POWER COMPANY, ET AL.

I. INTRODUCTION

On July 18, 1984, the U.S. Nuclear Regulatory Commission issued Facility Operating License NPF-24, together with Technical Specifications and other attachments, authorizing fuel loading and precriticality testing for the Catawba Nuclear Station, Unit 1. The Technical Specifications included surveillance requirements to demonstrate operability of the auxiliary feedwater (AFW) system, in part, by periodic testing of AFW pumps using a test loop of small diameter piping. Acceptance criteria for these periodic tests are specified as a minimum value of the total dynamic head to be developed at a specified minimum flow. The acceptance criteria in Technical Specification 4.7.1.2.1, as issued, are based upon nominal design parameters for the AFW system specified by Westinghouse on the basis of providing adequate protection for the core and to assure orderly cooldown. These nominal design parameters are in excess of the requirements assumed for the limiting safety analyses in Chapter 15 of the FSAR. By letters dated July 31, August 17, 24 and 29, 1984, the licensee stated that the preoperational functional tests conducted on the AFW system revealed that the acceptance criteria in the surveillance requirements of the current Technical Specification can not be met and requested that the criteria be changed to be based upon the minimum flow values established during testing and determined to envelope flow requirements for safety analyses.

II. EVALUATION

The AFW system for Catawba Unit 1 consists of two electric motor-driven pumps and one turbine-driven pump. The acceptance criteria in Specification 4.7.1.2.1a.1 for periodic testing of each motor-driven AFW pump are changed to require development of a total dynamic head of greater than or equal to 3470 feet at a flow of greater than or equal to 400 gpm, rather than a total dynamic head greater than or equal to 3210 feet at a flow of greater than or equal to 500 gpm. Similarly, the total dynamic head in Specification 4.7.1.2.1a.2 to be developed by the turbine-driven pump when the secondary steam supply pressure is greater than 600 psig and the AFW pump turbine is operating at 3600 rpm, is changed to be greater than or equal to 3550 feet at a flow of greater than or equal to 400 gpm, rather than a total dynamic head of greater than or equal to 3217 feet at a flow of greater than or equal to 1000 gpm. The associated bases 3/4.7.1.2 are changed to reflect that a feedwater line break accident, rather than a total loss of offsite power transient, is the limiting event with respect to system flow capacity.

By letters dated July 31, August 17, 24 and 29, 1984, the licensee has confirmed that testing each AFW pump through the test loop to verify a minimum flow of 400 gpm rather than 500 gpm as previously indicated assures that the AFW system is capable of supplying at least 492 gpm to at least two steam generators for core protection and decay heat removal under required design basis accident and transient conditions coupled with a single failure. The staff finds that 492 gpm is the limiting flow value assumed by the licensee in FSAR Chapter 15 safety analyses for Catawba and approved by the staff in the SER. Therefore, the staff concludes that the proposed Technical Specification change is consistent with the safety analyses, and is acceptable.

III. ENVIRONMENTAL CONSIDERATION

This amendment involves a change in the use of a facility component located within the restricted area as defined in 10 CFR Part 20. The staff has determined that the amendment involves 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 this amendment involves no significant hazards consideration and there has been no public comment on such finding. Accordingly, this amendment meets 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 this amendment.

IV. CONCLUSION

The Commission made a proposed determination that the amendment involves no significant hazards consideration which was published in the Federal Register (49 FR 33068) on August 20, 1984, and consulted with the state of South Carolina. No public comments were received, and the state of South Carolina did not have any comments.

In conclusion, the staff finds the proposed changes to the plant Technical Specifications to be acceptable and 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, and (2) such activities will be conducted in compliance with the Commission's regulations and the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributors: D. Hood, Licensing Branch No. 4, DL
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Dated: September 24, 1984

September 24, 1984

AMENDMENT NO. 1 TO FACILITY OPERATING LICENSE NPF-24 - CATAWBA NUCLEAR STATION, UNIT 1

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