

May 31, 1996

Mr. William R. McCollum  
Site Vice President  
Catawba Nuclear Station  
Duke Power Company  
4800 Concord Road  
York, South Carolina 29745-9635

Distribution R.Crlenjak,RII  
Docket File ACRS T-2 E26  
PUBLIC OGC  
PDII-2 RF G.Hill(4)  
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C.Grimes E.Merschhoff,RII  
P. Tam

SUBJECT: ISSUANCE OF AMENDMENTS - INCREASE TOLERANCE ON MAIN STEAM SAFETY VALVES, CATAWBA NUCLEAR STATION, UNITS 1 AND 2 (TAC NOS. M94190 AND M94191)

Dear Mr. McCollum:

The Nuclear Regulatory Commission has issued the enclosed Amendment No. 146 to Facility Operating License NPF-35 and Amendment No. 140 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 November 15, 1995, as supplemented March 15, and April 10, 1996.

The amendments revise the TS and the associated Bases to increase the setpoint tolerance of the main steam safety valves (MSSVs) from  $\pm 1\%$  to  $\pm 3\%$ , to incorporate a requirement to reset the as-left MSSV lift settings to within  $\pm 1\%$  following surveillance testing, and to delete two obsolete footnotes.

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/

Peter S. Tam, 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. 146 to NPF-35  
2. Amendment No. 140 to NPF-52  
3. Safety Evaluation

cc w/encls: See next page

DOCUMENT NAME: G:\CATAWBA\CAT94190.AMD

OFFICE	DRPE/PD22/LA <i>copy</i>	DRPE/PD22/PM	DRPE		OGC <i>W</i>	DRPE/PD22/D
NAME	L.BERRY <i>LB</i>	P.TAM:cn <i>PT</i>	R.MARTIN <i>RM</i>		<i>W</i>	H.BERRY <i>HB</i>
DATE	5/6/96	5/6/96	5/12/96		5/14/96	5/30/96 <i>for</i>

\* See previous concurrence OFFICIAL RECORD COPY

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UNITED STATES  
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

May 31, 1996

Mr. William R. McCollum  
Site Vice President  
Catawba Nuclear Station  
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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,

A handwritten signature in black ink, reading "Peter S. Tam".

Peter S. Tam, 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. 146 to NPF-35  
2. Amendment No. 140 to NPF-52  
3. Safety Evaluation

cc w/encs: See next page

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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. 146  
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 November 15, 1995, as supplemented March 15, and April 10, 1996, 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.

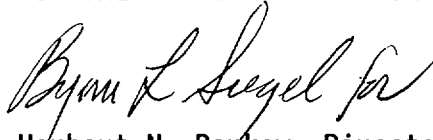
2. Accordingly, the license is hereby amended by page changes to the Technical Specifications as indicated in the attachment to this license amendment, and Paragraph 2.C.(2) of Facility Operating License No. NPF-35 is hereby amended to read as follows:

Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 146 , 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: May 31, 1996



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. 140  
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 November 15, 1995, as supplemented March 15, and April 10, 1996, 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.

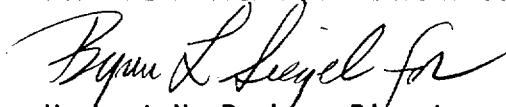
2. Accordingly, the license is hereby amended by page changes to the Technical Specifications as indicated in the attachment to this license amendment, and Paragraph 2.C.(2) of Facility Operating License No. NPF-52 is hereby amended to read as follows:

Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 140 , 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: May 31, 1996

ATTACHMENT TO LICENSE AMENDMENT NO. 146

FACILITY OPERATING LICENSE NO. NPF-35

DOCKET NO. 50-413

AND

TO LICENSE AMENDMENT NO. 140

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

3/4 7-1  
3/4 7-2  
3/4 7-3  
B 3/4 7-1

Insert Pages

3/4 7-1  
3/4 7-2  
3/4 7-3  
B 3/4 7-1



### 3/4.7 PLANT SYSTEMS

#### 3/4.7.1 TURBINE CYCLE

##### SAFETY VALVES

#### LIMITING CONDITION FOR OPERATION

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3.7.1.1 All main steam line Code safety valves associated with each steam generator shall be OPERABLE with lift settings as specified in Table 3.7-2.

APPLICABILITY: MODES 1, 2, and 3.

ACTION:

- a. With four reactor coolant loops and associated steam generators in operation and with one or more main steam line Code safety valves inoperable, operation in MODES 1, 2, and 3 may proceed provided, that within 4 hours, either the inoperable valve is restored to OPERABLE status or the Power Range Neutron Flux High Trip Setpoint is reduced per Table 3.7-1; otherwise, be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.
- b. The provisions of Specification 3.0.4 are not applicable.

#### SURVEILLANCE REQUIREMENTS

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4.7.1.1 No additional requirements other than those required by Specification 4.0.5. During surveillance testing, as-left lift settings shall be within  $\pm 1\%$ .

TABLE 3.7-1

MAXIMUM ALLOWABLE POWER RANGE NEUTRON FLUX HIGH SETPOINT WITH  
INOPERABLE STEAM LINE SAFETY VALVES DURING FOUR LOOP OPERATION

<u>MAXIMUM NUMBER OF INOPERABLE SAFETY VALVES ON ANY OPERATING STEAM GENERATOR</u>	<u>MAXIMUM ALLOWABLE POWER RANGE NEUTRON FLUX HIGH SETPOINT (PERCENT OF RATED THERMAL POWER)</u>
1	87
2	65
3	43

TABLE 3.7-2

STEAM LINE SAFETY VALVES PER LOOP

	<u>VALVE NUMBER</u>				<u>LIFT SETTING* (<math>\pm 3\%</math>)</u>	<u>ORIFICE SIZE</u>
	<u>Loop A</u>	<u>Loop B</u>	<u>Loop C</u>	<u>Loop D</u>		
1.	SV-20	SV-14	SV-8	SV-2	1175 psig	14.18 in. <sup>2</sup>
2.	SV-21	SV-15	SV-9	SV-3	1190 psig	14.18 in. <sup>2</sup>
3.	SV-22	SV-16	SV-10	SV-4	1205 psig	14.18 in. <sup>2</sup>
4.	SV-23	SV-17	SV-11	SV-5	1220 psig	14.18 in. <sup>2</sup>
5.	SV-24	SV-18	SV-12	SV-6	1230 psig	14.18 in. <sup>2</sup>

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

### 3/4.7 PLANT SYSTEMS

#### BASES

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#### 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. Table 3.7-2 allows a  $\pm 3\%$  setpoint tolerance for OPERABILITY; however, the valves are reset to  $\pm 1\%$  during surveillance testing to allow for drift. The total relieving capacity for all valves on all of the steam lines is  $16.85 \times 10^6$  lbs/h which is 105% of the total secondary steam flow of  $16.05 \times 10^6$  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



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
RELATED TO AMENDMENT NO. 146 TO FACILITY OPERATING LICENSE NPF-35  
AND AMENDMENT NO. 140 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 November 15, 1995, as supplemented March 15, and April 10, 1996, Duke Power Company, et al. (the licensee), submitted a request for changes to the Catawba Nuclear Station, Units 1 and 2, Technical Specifications (TS). The requested changes would revise the TS and the associated Bases to increase the setpoint tolerance of the main steam safety valves (MSSVs) from  $\pm 1\%$  to  $\pm 3\%$ , to incorporate a requirement to reset the as-left MSSV lift settings to within  $\pm 1\%$  following surveillance testing, and to delete two obsolete footnotes. The March 15, and April 10, 1996, letters provided clarifying information that did not change the scope of the November 15, 1995, application and the initial proposed no significant hazards consideration determination.

2.0 EVALUATION

To support the proposed TS for MSSV setpoint tolerances, the licensee has performed an evaluation to determine the impact on the design basis transients and accidents for Catawba Nuclear Station, Units 1 and 2. Based on its evaluation, the licensee states in its April 10, 1996, letter that with the exception of the steam generator tube rupture (SGTR) event, all of the transients and accidents, which could potentially challenge the MSSVs, were previously analyzed in the Updated Final Safety Analysis Report (UFSAR) with the increased setpoint tolerance of  $\pm 3\%$ . The affected transients and accidents include turbine trip, loss of AC power, partial loss of flow, complete loss of flow, locked rotor, feedwater line break, uncontrolled bank withdrawal at power, single uncontrolled rod withdrawal, inadvertent opening of a pressurizer safety or relief valve and small-break loss of coolant accident. The results of these analyses demonstrate that the acceptance

criteria for each event are met. The licensee stated that the methodology used in its analyses is consistent with the NRC-approved methodology described in topical reports DPC-NE-3000-A<sup>1</sup> and DPC-NE-3002-A<sup>2</sup>, which were previously approved by the staff. The staff reviewed the licensee's analyses, and found them acceptable on the basis that approved methodology was used. The subject of the revised modeling for the opening of the safety valves as discussed in the licensee's March 15, 1996, submittal was addressed by separate correspondence<sup>3</sup>.

The licensee states that the NRC-approved methodology for the SGTR in DPC-NE-3002-A specifies that the MSSVs are modeled with lift, accumulation, and blowdown assumptions, which maximize secondary pressure. These assumptions conservatively delay the operator actions to isolate a failed open atmospheric steam dump valve which causes increased radiological consequences following a steam generator tube rupture event. The licensee has reanalyzed this event with the increased MSSV setpoint tolerance of  $\pm 3\%$ . The results of its reanalysis show that the radiological consequences are within acceptance criteria. The staff finds the licensee's analysis acceptable on the basis that approved methodology was used.

The licensee-proposed changes include the addition of a statement to TS Surveillance Requirement 4.7.1.1 to require that during surveillance testing, as-left lift settings shall be within  $\pm 1\%$ . This will prevent excessive setpoint drift (i.e., beyond  $\pm 3\%$ ) which could cause the peak system pressures to exceed the allowable limits. The added statement supports the tolerance of  $\pm 3\%$  the staff found acceptable in the two paragraphs above.

### 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.

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<sup>1</sup> As approved by letter from R. E. Martin (NRC) to M. S. Tuckman (DPC) dated December 27, 1995, transmitting safety evaluation for DPC-NE-3000-P, "Thermal-Hydraulic Transient Analysis Methodology," Revision 1.

<sup>2</sup> As approved by letter from R. E. Martin (NRC) to M. S. Tuckman (DPC) dated December 28, 1995, transmitting safety evaluation for DPC-NE-3002, "FSAR Chapter 15 System Transient Analysis Methodology," Revision 1.

<sup>3</sup> Letter from H. N. Berkow (NRC) to M. S. Tuckman (DPC) dated April 26, 1996, "Safety Evaluation on Change to Topical Report DPC-NE-3002-A On Opening Characteristics of Safety Valves."

#### 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 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 FR 65676 dated December 20, 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 Contributors: P. Campbell  
C. Liang

Date: May 31, 1996