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

Distribution Docket File D.Hagan T-4 A43 **PUBLIC** G.Hill(4) T-5 C3 PDII-3 Reading C.Grimes 0-11 F23 ACRS(4) T-2 E26 S. Varga PA 0-17 F2 OC/LFDCB T-9 E10 E. Merschoff, (A), RII R. Crleniak. RII

SUBJECT:

ISSUANCE OF AMENDMENTS - 4 KV BUS UNDERVOLTAGE TRIP SETPOINT AND ALLOWABLE VALUE CHANGES, CATAWBA NUCLEAR STATION, UNITS 1 AND 2

(TAC NOS. M90333 AND M90334)

Dear Mr. Rehn:

The Nuclear Regulatory Commission has issued the enclosed Amendment No.127 to Facility Operating License NPF-35 and Amendment No. 121 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 August 25, 1994, as supplemented on November 16, 1994.

The amendments revise TS Table 3.3-4, by revising the "Trip Setpoint" and "Allowable Value" for the 4 kV bus undervoltage grid degraded voltage relays and the "Allowable Value" for the 4 kV undervoltage loss-of-voltage/loss-ofoffsite power relays. This revision was submitted in response to a concern identified by the licensee in their Self-Initiated Technical Audit and during the electrical distribution system functional inspection team findings.

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

250077

Docket Nos. 50-413 and 50-414

Enclosures:

\*See Previous Concurrence

1. Amendment No. 127 to NPF-35 Amendment No. 121 to NPF-52

Safety Evaluation

cc w/encl: See next page

DOCUMENT NAME: G:\CATAWBA\CAT90333.AMD

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WASHINGTON, D.C. 20555-0001

January 20, 1995

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

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Robert E. Martin, Senior Project Manager

Project Directorate II-3

Division of Reactor Projects - I/II Office of Nuclear Reactor Regulation

Docket Nos. 50-413 and 50-414

Enclosures:

1. Amendment No. 127 to NPF-35

2. Amendment No. 121 to NPF-52

3. Safety Evaluation

cc w/encl: See next page

Mr. David L. Rehn Duke Power Company

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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. 127 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 25, 1994, as supplemented November 16, 1994, 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. 127 , 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

Werbert N. Berkow, Director Project Directorate II-3

Division of Reactor Projects - I/II Office of Nuclear Reactor Regulation

Attachment: Technical Specification Changes

Date of Issuance: January 20, 1995



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. 121 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 25, 1994, as supplemented November 16, 1994, 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.  $_{121}$ , 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-3

Division of Reactor Projects - I/II Office of Nuclear Reactor Regulation

Attachment: Technical Specification Changes

Date of Issuance: January 20, 1995

# ATTACHMENT TO LICENSE AMENDMENT NO. 127

# FACILITY OPERATING LICENSE NOS. NPF-35

**DOCKET NO. 50-413** 

AND

# TO LICENSE AMENDMENT NO. 121

# 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.

<u>Remove Pages</u>	<u>Insert Pages</u>
3/4 3-31	3/4 3-31
3/4 3-32	3/4 3-32
3/4 3-33	3/4 3-33
3/4 3-34	3/4 3-34

CA.	TABLE 3.3-4 (Continued) ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION TRIP SETPOINTS					
CATAWBA	FUNCTIONAL_UNIT			TRIP SETPOINT	ALLOWABLE VALUE	
1	8.	Auxi	liary Feedwater (Continued)			
STINU		c.	Steam Generator Water Level - Low-Low			
1 AND 2			1) Unit 1	≥ 17% of span from 0% to 30% RTP increasing linearly to ≥ 40.0% of span from 30%	≥ 15.3% of span from 0% to 30% RTP increasing linearly to ≥ 38.3% of span from 30% to 100% RTP	
			2) Unit 2	to 100% RTP ≥ 36.8% of narrow range span	≥ 35.1% of narrow range instrument span	
3/4	$\frac{\omega}{F}$ d. Safety Injection See Item 1. above for all Safety Injection Setpoints and All			ve for all Safety Injection Setpoints and Allowable Values		
သ -သ		e.	Loss-of-Offsite Power	≥ 3500 <b>V</b>	≥ 3242 V	
		f.	Trip of All Main Feedwater Pumps	N.A.	N.A.	
Amendment No. 127 Amendment No. 121	9.	g. Cont	Auxiliary Feedwater Suction Pressure-Low 1) CAPS 5220, 5221, 5222 2) CAPS 5230, 5231, 5232 a. Unit 1 b. Unit 2 ainment Sump Recirculation	<pre>≥ 10.5 psig ≥ 6.2 psig ≥ 6.2 psig ≥ 6.0 psig</pre>	<pre>≥ 9.5 psig ≥ 5.2 psig ≥ 5.2 psig ≥ 5.0 psig</pre>	
(Unit (Unit		a.	Automatic Actuation Logic and Actuation Relays	N.A.	N.A.	
2)		b.	Refueling Water Storage Tank Level-Low Coincident With Safety Injection	_	≥ 162.4 inches ve for all Safety Injection Setpoints and Allowable Values	•

# TABLE 3.3-4 (Continued)

# ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION TRIP SETPOINTS

WBA		ENGINEERED SAFETY FEATURES ACTUATION SISTEM INSTRUMENTATION TRIP SETPOINTS				
1	FUN	CTIO	NAL UNIT	TRIP SETPOINT	ALLOWABLE VALUE	
SLINA	13.	13. Annulus Ventilation Operation				
-		a.	Manual Initiation	N.A.	N.A.	
AND 2		b.	Automatic Actuation Logic and Actuation Relays	N.A.	N.A. (	
		c.	Safety Injection	See Item 1. abo	ove for all Safety Injection Setpoints and Allowable Values.	
	14.	Nuc	lear Service Water Operation			
		a.	Manual Initiation	N.A.	N.A.	
3/4 3		b.	Automatic Actuation Logic and Actuation Relays	N.A.	N.A.	
သ သ သ		c.	Loss-of-Offsite Power	≥ 3500 <b>V</b>	≥ 3242 V	
		d.	Containment Spray	See Item 2. abo	ove for all Containment Spray Setpoints and Allowable Values.	
Amendment Amendment		e.	Phase "B" Isolation	See Item 3.b. above for all Phase "B" Isolation Setpoints and Al Values.		
ent ent		f.	Safety Injection	See Item 1. abo	ove for all Safety Injection Setpoints and Allowable Values.	
No.		g.	Suction Transfer-Low Pit Level	≥E1. 554.4 ft.	≥E1. 552.9 ft.	
127 (Unit 121 (Unit	15.	Ope Ven	ergency Diesel Generator Pration (Diesel Building Stilation Operation, Nuclear Evice Water Operation)			
2)		a.	Manual Initiation	N.A.	N.A.	

# TABLE 3.3-4 (Continued)

# ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION TRIP SETPOINTS

TA	ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION TRIP SETPOINTS						
TAWBA - UNITS 1 AND 2	FUNCTIONAL UNIT			TRIP SETPOINT	ALLOWABLE VALUE		
	15.	Emergency Diesel Generator Operation (Diesel Building Ventilation Operation, Nuclear Service Water Operation) (Continued)					
		b.	Automatic Actuation Logic and Actuation Relays	N.A.	N.A.		
		c.	Loss-of-Offsite Power	≥ 3500 V	≥ 3242 V		
3/4 3-34		d.	Safety Injection	See Item. 1 abo	ove for all Safety Injection Setpoints and Allowable Values	š .	
	16.		iliary Building Filtered aust Operation				
		a.	Manual Initiation	N.A.	N.A.		
		b.	Automatic Actuation Logic and Actuation Relays	N.A.	N.A.		
Amendment Amendment		c.	Safety Injection	See Item 1. abo	ove for all Safety Injection Setpoints and Allowable Value		
	17.		sel Building Ventilation ration				
₹ ₹ 8.		a.	Manual Initiation	N.A.	N.A.		
. 127 . 121		b.	Automatic Actuation Logic and Actuation Relays	N.A.	N.A.		
(Unit 1 (Unit 2		c.	Emergency Diesel Generator Operation	See Item 15. above for all Emergency Diesel Generator Operation Setpoints and Allowable Values.			

WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 127 TO FACILITY OPERATING LICENSE NPF-35

AND AMENDMENT NO. 121 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

NUCLEAR REGULATO

By letter dated August 25, 1994, as supplemented November 16, 1994, 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 change TS Table 3.3-4, "Engineered Safety Features Actuation System Instrumentation Trip Setpoints" by revising the "Trip Setpoint" and "Allowable Value" for the 4 kV bus undervoltage grid degraded voltage relays and the "Allowable Value" for the 4 kV undervoltage loss of voltage/loss-of-offsite power relays. This revision was submitted in response to a concern identified by the licensee in their Self-Initiated Technical Audit (SITA) and during the electrical distribution system functional inspection (EDSFI) team findings. The November 16, 1994, letter provided clarifying information that did not change the scope of the August 25, 1994, application and the initial proposed no significant hazards consideration determination.

The two trains of the 4160 volt ac essential auxiliary power system are each provided with two levels of undervoltage protection. The first level detects a loss of voltage. The relays will drop out if the voltage falls below 3500 volts for more than 10 cycles. This 3500 volt setpoint, identified as "Loss of Offsite Power" or "Loss of Power/4KV Bus Undervoltage-Loss of Voltage," appears in five functional units in Table 3.3-4. It did not require modification for the reasons discussed below. However, the allowable value for this parameter did require a change from 3200 volts to 3242 volts. The second level of protection provides degraded voltage detection and alarms and drops out after established time delays. This parameter, identified as "Loss of Power/4KV Bus Undervoltage-Grid Degraded Voltage," appears once in Table 3.3-4. Its setpoint was changed from 3685 to 3766 volts and its allowable value was changed from 3611 to 3738 volts.

As noted above, the "Trip Setpoint" for the 4 kV loss-of-voltage/loss-of-offsite power does not require any change. This is because the existing TS trip setpoint is already at a more conservative value than required.

The licensee's original calculation for establishing these parameters did not account for all variables in determining the relay settings. The consideration of those variables is required in order to determine the

appropriate relay Trip Setpoint and Allowable Value. The new calculation includes allowance for these variables. The proposed revision is a result of the licensee's SITA and the EDSFI team evaluation.

#### 2.0 EVALUATION

The staff has evaluated the proposed revisions submitted by the licensee as follows:

## Revision to Existing TS Table 3.3-4

The licensee has proposed to revise the "Engineered Safety Features Actuation Instrumentation Trip Setpoints," TS Table 3.3-4 for the 4 kV essential power system which supplies power to those Class 1E loads required to safely shut down the unit following a design basis accident. The system is divided into two completely redundant and independent trains. Each redundant 4 kV essential bus is provided with two levels of undervoltage protection to monitor bus voltage. Each level is provided with a separate set of three undervoltage relays which are utilized in a two-out-of-three logic scheme. The proposed changes are as follows:

Item 8.e: Loss of Offsite Power: Under "ALLOWABLE VALUE" change "≥ 3200"
volts to "> 3242" volts.

Item 10.b: 4 kV Undervoltage Grid Degraded Voltage: Under "TRIP SETPOINT"
 change "≥ 3685" volts to "≥ 3766" volts, and under "ALLOWABLE
 VALUE" change "≥ 3611" volts to "≥ 3738" volts.

Item 11.b: Loss of Offsite Power: Under "ALLOWABLE VALUE" change "≥ 3200"
volts to "≥ 3242" volts.

Item 14.c: Loss of Offsite Power: Under "ALLOWABLE VALUE" change "≥ 3200"
volts to "> 3242" volts.

Item 15.c: Loss of Offsite Power: Under "ALLOWABLE VALUE" change "≥ 3200"
volts to "> 3242" volts.

The first level of undervoltage relays detects a loss of voltage on the 4 kV essential bus. The TS trip setpoints for the loss of voltage/loss of offsite power do not require any changes because the existing TS trip setpoints are already at a more conservative value than required by the calculation. The allowable value for the loss-of-voltage/loss-of-offsite power was revised to  $\geq$  3242 volts to account for instrument errors which were not considered in the licensee's original calculation.

The second level of undervoltage protection provides degraded voltage protection. The EDSFI team evaluation identified that the reset-to-dropout ratio of the degraded voltage relays was high, approximately 105 percent. This wide reset band could allow unnecessary actuation of the undervoltage protection system. In response to the EDSFI team concerns, the licensee replaced the degraded voltage relays with a model that has a narrower tolerance band and better pickup-to-dropout ratio. Also, the licensee's original calculation was non-conservative in that the voltage drop analysis only went down to the 4 kV level rather than the 120 volt level. Also, the calculation did not account for all possible errors in determining the relay settings. The allowance for error in the calculation is required in order to determine the minimum allowable value and the relay trip setpoint. The new calculation includes all possible errors, tolerances, and drift considerations in the determination of the trip setpoint of the relay. The licensee also did a new voltage drop analysis that went down to the 120 volt level on all essential buses. The calculation specifies a trip setpoint of  $\geq$  3766 volts (approximately 90.5% of nominal bus voltage) with a revised allowable value of > 3738 volts (89.9% of nominal bus voltage).

Branch Technical Position (BTP) PSB-1, "Adequacy of Station Electrical Distribution System Voltages," provided the criteria for determining adequate degraded voltage protection. The licensee conducted an engineering review and reanalysis of the Electrical Distribution System, which involved adequately addressing the EDSFI results and the requirements of BTP PSB-1, in order to establish the technical specification trip setpoint and allowable value for grid degraded (undervoltage) relays. The proposed revision does not change the design, function, or method of operation of Class 1E equipment at Catawba, Units 1 and 2.

This proposed TS modification requires no change to the actual field settings because the current settings of the affected relays are in conformance with the proposed values.

Based on the above evaluation, the staff finds the proposed changes to Catawba, Units 1 and 2, TS to be 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 (59 FR 51619 dated October 12, 1994). 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: Charles R. Thomas

**Date:** January 20, 1995