

July 28, 1999

Mr. James Scarola, Vice President
Shearon Harris Nuclear Power Plant
Carolina Power & Light Company
Post Office Box 165, Mail Code: Zone 1
New Hill, North Carolina 27562-0165

SUBJECT: SHEARON HARRIS NUCLEAR POWER PLANT, UNIT 1 - ISSUANCE OF
AMENDMENT RE: TIME CONSTANT CORRECTIONS (TAC NO. MA4947)

Dear Mr. Scarola:

The Nuclear Regulatory Commission has issued Amendment No. 89 to Facility Operating License No. NPF-63 for the Shearon Harris Nuclear Power Plant, Unit No. 1, in response to your request dated February 26, 1999. This amendment changes the Table Notations for Technical Specification (TS) Table 3.3-4, "Engineered Safety Features Actuation System Instrumentation Trip Setpoints." Specifically, the time constants used in the lead-lag controller for Steam Line Pressure - Low (Table item 1.e) and in the rate-lag controller for Negative Steam Line Pressure Rate - High (Table item 4.e) have been revised.

A copy of the related Safety Evaluation is enclosed. Notice of Issuance will be included in the Commission's regular bi-weekly Federal Register notice.

Sincerely,

Original signed by:

Richard J. Laufer, Project Manager, Section 2
Project Directorate II
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

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PDR ADOCK 05000400
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Docket No. 50-400

Enclosures:

- 1. Amendment No. 89 to NPF-63
- 2. Safety Evaluation

cc w/enclosures:
See next page

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See next page

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UNITED STATES
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

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Carolina Power & Light Company
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Sincerely,

A handwritten signature in cursive script that reads "Richard J. Laufer".

Richard J. Laufer, Project Manager, Section 2
Project Directorate II
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-400

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cc w/enclosures:
See next page



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

CAROLINA POWER & LIGHT COMPANY, et al.

DOCKET NO. 50-400

SHEARON HARRIS NUCLEAR POWER PLANT, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 89
License No. NPF-63

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Carolina Power & Light Company, (the licensee), dated February 26, 1999, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations 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;
 - 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 amended by 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-63 is hereby amended to read as follows:

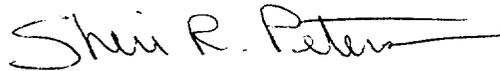
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(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, and the Environmental Protection Plan contained in Appendix B, both of which are attached hereto, as revised through Amendment No. 89, are hereby incorporated into this license. Carolina Power & Light Company shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. This license amendment is effective as of the date of its issuance and shall be implemented within 60 days of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Sheri R. Peterson, Chief, Section 2
Project Directorate II
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: July 28, 1999

ATTACHMENT TO LICENSE AMENDMENT NO. 89

FACILITY OPERATING LICENSE NO. NPF-63

DOCKET NO. 50-400

Replace the following page of the Appendix A Technical Specifications with the attached revised page. The revised page is identified by amendment number and contains marginal lines indicating the areas of change.

Remove Page

3/4 3-36

Insert Page

3/4 3-36

TABLE 3.3-4 (Continued)

TABLE NOTATIONS

- * Time constants utilized in the lead-lag controller for Steam Line Pressure-Low are $\tau_1 \geq 50$ seconds and $\tau_2 \leq 5$ seconds. CHANNEL CALIBRATION shall ensure that these time constants are adjusted to these values.
- ** The time constant utilized in the rate-lag controller for Steam Line Pressure-Negative Rate--High is ≥ 50 seconds. CHANNEL CALIBRATION shall ensure that this time constant is adjusted to this value.
- # The indicated values are the effective, cumulative, rate-compensated pressure drops as seen by the comparator.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

CAROLINA POWER & LIGHT COMPANY

SHEARON HARRIS NUCLEAR POWER PLANT, UNIT 1

DOCKET NO. 50-400

1.0 INTRODUCTION

By letter dated February 26, 1999, Carolina Power & Light Company (CP&L, the licensee) requested a revision to the Technical Specifications (TS) for the Shearon Harris Nuclear Power Plant (HNP). The licensee proposed changing the Table Notations for TS Table 3.3-4, "Engineered Safety Features Actuation System Instrumentation Trip Setpoints." Specifically, the time constants used in the lead-lag controller for Steam Line Pressure - Low (Table item 1.e) and in the rate-lag controller for Negative Steam Line Pressure Rate - High (Table item 4.e) would be revised.

2.0 BACKGROUND

HNP TS Table 3.3-4, "Engineered Safety Features Actuation System Instrumentation Trip Setpoints" provides the trip setpoints and allowable values for various instrumentation used to actuate Engineered Safety Features (ESFs). The ESF Actuation System (ESFAS) senses selected plant parameters and determines whether or not predetermined limits are being exceeded. If they are, the signals are combined into logic matrices sensitive to combinations indicative of various accident events and transients. Once the required logic combination is completed, the system sends actuation signals to those ESF components whose aggregate function best serves the requirements of the condition.

The Trip Setpoints in Table 3.3-4 are the nominal values at which the bistables are set for each functional unit. To accommodate the instrument drift assumed to occur between operational tests and the accuracy to which setpoints can be measured and calibrated, Allowable Values for the setpoints have been specified in Table 3.3-4. Operation with setpoints less conservative than the Trip Setpoint but within the Allowable Value is acceptable since an allowance has been made in the safety analysis to accommodate this error.

The first ESF function listed in this table is "Safety Injection" (Table Item 1.), with five plant parameters which generate a Safety Injection. One of these parameters is "Steam Line Pressure - Low" (Table Item 1.e.). The instrumentation used to detect the low steam line pressure has a Trip Setpoint of ≥ 601 psig and an Allowable Value of ≥ 578.3 psig. A notation is provided for this Allowable Value stating "Time constants utilized in the lead-lag controller for Steam Line Pressure - Low are $t_1 \geq 50$ seconds and $t_2 \geq 5$ seconds. CHANNEL CALIBRATION shall ensure that these time constants are adjusted to these values."

The fourth ESF function listed in Table 3.3-4 is "Main Steam Line Isolation" (Table Item 4.e), with five plant parameters which generate a Main Steam Isolation. One of these parameters is "Negative Steam Line Pressure Rate - High" (Table Item 4.e.) The instrumentation used to detect high negative steam line pressure rate has a Trip Setpoint of ≤ 100 psi and an Allowable Value of ≤ 122.8 psi. A notation is provided for this Allowable Value stating "The time constant utilized in the rate-lag controller for Steam Line Pressure-Negative Rate - High is less than or equal to 50 seconds. CHANNEL CALIBRATION shall ensure that this time constant is adjusted to this value."

3.0 EVALUATION

The licensee has determined that the t_2 time constant used in the lead-lag controller for Steam Line Pressure - Low (TS Table 3.3-4, item 1.e), and the time constant used in the rate-lag controller for Negative Steam Line Pressure Rate - High (TS Table 3.3-4, item 4.e), which have existed in the HNP TS since initial plant licensing, are non-conservative. The licensee has, therefore, proposed revising these time constants.

3.1 Steam Line Pressure - Low (TS Table 3.3-4, item 1.e)

The t_2 time constant used in the lead-lag controller for Steam Line Pressure - Low (TS Table 3.3-4, item 1.e) would be changed from ≥ 5 seconds to ≤ 5 seconds. The proposed revision would change the table notation for item 1.e to read: "Time constants utilized in the lead-lag controller for Steam Line Pressure - Low are $t_1 \geq 50$ seconds and $t_2 \leq 5$ seconds. CHANNEL CALIBRATION shall ensure that these time constants are adjusted to these values."

The Westinghouse Setpoint Methodology for Protection Systems - Shearon Harris, Revision 2, and Westinghouse Improved Technical Specifications (ITS), Revision 1 (04/07/95) both specify the t_2 time constant for the lead-lag controller for Steam Line Pressure - Low as ≤ 5 seconds. The Standard Technical Specifications (STS) for Westinghouse Pressurized Water Reactors (PWRs), NUREG 0452, Revision 5 (Draft), upon which the HNP TS were based, incorrectly specified the t_2 time constant for the lead-lag controller for Steam Line Pressure - Low as ≥ 5 seconds.

A time constant of less than or equal to 5 seconds provides a more conservative setpoint because it would cause the anticipatory Low Steam Line Pressure Safety Injection circuitry to function sooner if a true Low Steam Line Pressure signal is sensed. The HNP calibration procedures currently specify a t_1 time constant of 50 to 55 seconds and a t_2 time constant of 5.0 to 5.5 seconds. The licensee has determined that the Allowable Values for the instrumentation have not been exceeded using these time constants. In addition, the licensee evaluated the accident analyses presented in Chapter 15 of the HNP Final Safety Analyses and determined that they were not impacted by the incorrect inequality sign on the t_2 time constant. The licensee also reviewed plant operation, as indicated in calibration data sheets, and determined that it has been and continues to be bounded by the Chapter 15 analyses of record.

Changing the t_2 time constant to be less than or equal to 5 seconds will provide for a more conservative calibration of the ESFAS instrumentation. The staff, therefore, finds the proposed change acceptable.

3.2 Negative Steam Line Pressure Rate - High (TS Table 3.3-4, item 4.e)

The time constant used in the rate-lag controller for Negative Steam Line Pressure Rate - High (Table Item 4.e.) would be changed from ≤ 50 seconds to ≥ 50 seconds. The proposed revision would change the table notation for item 4.e to read: "The time constant utilized in the rate-lag controller for Steam Line Pressure-Negative Rate - High is ≥ 50 seconds. CHANNEL CALIBRATION shall ensure that this time constant is adjusted to this value."

Both the Standard TS for Westinghouse PWRs, NUREG 0452, Revision 5 (Draft) and the Westinghouse ITS, Revision 1 (04/07/95) incorrectly specified the time constant utilized in the rate-lag controller for Steam Line Pressure-Negative Rate - High as less than or equal to 50 seconds. A generic revision to the Westinghouse ITS, TS Task Force (TSTF) 328, is currently being reviewed to correct this time constant to be greater than or equal to 50 seconds. A time constant of greater than or equal to 50 seconds would allow for a more conservative Trip Setpoint. The HNP calibration procedures currently specify a time constant between 45 and 50 seconds for this rate controller. The minimum rate time constant of 45 seconds results in a step input of 111.83 psi, which is substantially below the existing TS Allowable Value of 122.8 psi. Therefore, the non-conservative time constant will not cause HNP to exceed analyzed safety limits.

Changing the time constant to be greater than or equal to 50 seconds will result in a more conservative Trip Setpoint and will conform with the existing setpoint program philosophy and other HNP TS-related setpoints. The staff, therefore, finds the proposed change acceptable.

4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the State of North Carolina official was notified of the proposed issuance of the amendment. The State official had no comments.

5.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement 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 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 the amendment involves no significant hazards consideration, and there has been no public comment on such finding (64 FR 14280). Accordingly, the 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 the amendment.

6.0 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 amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: R. Laufer

Date: July 28, 1999

Mr. James Scarola
Carolina Power & Light Company

Shearon Harris Nuclear Power Plant
Unit 1

cc:

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AMENDMENT NO. 89 TO FACILITY OPERATING LICENSE NO. NPF-63 - HARRIS, UNIT 1

Docket File
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