October 5, 1990

Docket No. 50-400

DISTRIBUTION
See attached list

Mr. Lynn W. Eury
Executive Vice President
Power Supply
Carolina Power & Light Company
Post Office Box 1551
Raleigh, North Carolina 27602

Dear Mr. Eury:

SUBJECT: ISSUANCE OF AMENDMENT NO. 22 TO FACILITY OPERATING LICENSE NO. NPF-63 REGARDING AUXILIARY FEEDWATER PUMP SURVEILLANCE - SHEARON HARRIS NUCLEAR POWER PLANT, UNIT 1, (TAC NO. 77664)

The Nuclear Regulatory Commission has issued the enclosed Amendment No. 22 to Facility Operating License No. NPF-63 for the Shearon Harris Nuclear Power Plant, Unit 1. This amendment consists of changes to the Technical Specifications in response to your request dated September 27, 1990, as supplemented September 28, 1990. This emergency Technical Specification change request revises Surveillance Requirement 4.7.1.2.1.a.1 associated with monthly testing on a staggered test basis of the two motor-driven auxiliary feedwater pumps (AFW). Specifically, this change revises Surveillance Requirement 4.7.1.2.1.a.1 to require that the motor-driven AFW pumps be verified to develop a differential pressure that (when temperature compensated to 70°F) is greater than or equal to 1558 psid at a recirculation flow of greater than or equal to 50 gpm. A Temporary Waiver of Compliance was issued on September 28, 1990, to permit utilization of this change until this amendment could be issued.

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,

151

Richard A. Becker, Project Manager
Project Directorate II-1
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Enclosures:
1. Amendment No. 22 to NPF-63
2. Safety Evaluation

cc w/enclosures:
See next page

9010160190 901005
PDR ADOCK 05000400
P PDC

OFC	:LA:PD21:DRPR	:PM:PD21:DRPR	:D:PD21:DRPR	:	:	:
NAME	:PAnderson:	:RBecker:sw	:EAdensam	:	:	:
DATE	:10/4/90	:10/4/90	:10/4/90	:	:	:

OFFICIAL RECORD COPY
[harris amend 77664]

Mr. L. W. Eury
Carolina Power & Light Company

Shearon Harris

cc:

Mr. R. E. Jones, General Counsel
Carolina Power & Light Company
P. O. Box 1551
Raleigh, North Carolina 27602

Resident Inspector/Harris NPS
c/o U. S. Nuclear Regulatory Commission
Route 1, Box 315B
New Hill, North Carolina 27562

Mr. R. B. Richey, Manager
Harris Nuclear Project
Harris Nuclear Plant
P. O. Box 165
New Hill, North Carolina 27562

Mr. H. A. Cole
Special Deputy Attorney General
State of North Carolina
P. O. Box 629
Raleigh, North Carolina 27602

Regional Administrator, Region II
U.S. Nuclear Regulatory Commission
101 Marietta Street
Suite 2900
Atlanta, Georgia 30323

Mr. C. S. Hinnant
Plant General Manager
Harris Nuclear Plant
P. O. Box 165
New Hill, North Carolina 27562

Mr. Dayne H. Brown, Director
Division of Radiation Protection
N. C. Department of Environmental,
Commerce & Natural Resources
P. O. Box 27687
Raleigh, North Carolina 27611-7687

AMENDMENT NO. 22 TO FACILITY OPERATING LICENSE NO. NPF-63 - HARRIS, UNIT 1

Docket File
NRC PDR
Local PDR
PDII-1 Reading
S. Varga (14E4)
G. Lainas
E. Adensam
P. Anderson
R. Becker
OGC
D. Hagan (MNBB 3302)
E. Jordan (MNBB 3302)
G. Hill (4) (P1-137)
Wanda Jones (P-130A)
J. Calvo (11D3)
C. McCracken
ACRS (10)
GPA/PA
OC/LFMB

cc: Harris Service List

C 361

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

CAROLINA POWER & LIGHT COMPANY, et al.

DOCKET NO. 50-400

SHEARON HARRIS NUCLEAR POWER PLANT, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 22
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 September 27, 1990, as supplemented September 28, 1990, 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:

9010160192 901005
PDR ADOCK 05000400
P PDC

(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. 22, 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 30 days of receipt of the amendment.

FOR THE NUCLEAR REGULATORY COMMISSION

ISI

Elinor G. Adensam, Director
Project Directorate II-1
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: October 5, 1990

OFC	:LA:PD21:DRPR	:PM:PD21:DRPR	:SPLB	: OGC	:D:PD21:DRPR	:	:
NAME	:PAnderson:	: RBecker:sw	:CMcCracken	: E. Holler	: EAdensam	:	:
DATE	:10/2/90	:10/2/90	:10/4/90	: 10/4/90	:10/5/90	:	:

OFFICIAL RECORD COPY

ATTACHMENT TO LICENSE AMENDMENT NO. 22

FACILITY OPERATING LICENSE NO. NPF-63

DOCKET NO. 50-400

Replace the following page of the Appendix A Technical Specifications with the enclosed page. The revised area is indicated by marginal line.

Remove Page	Insert Page
3/4 7-4	3/4 7-4

PLANT SYSTEMS

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 buses, 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 within 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 differential pressure that (when temperature compensated to 70°F) is greater than or equal to 1558 psid at a recirculation flow of greater than or equal to 50 gpm.

2. Verifying that the steam turbine-driven pump develops a discharge pressure of greater than or equal to 1510 psig on a recirculation flow of greater than or equal to 90 gpm when the secondary steam supply pressure is greater than 210 psig. The provisions of Specification 4.0.4 are not applicable for entry into MODE 3;

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 22 TO FACILITY OPERATING LICENSE NO. NPF-63

CAROLINA POWER & LIGHT COMPANY, et al.

SHEARON HARRIS NUCLEAR POWER PLANT, UNIT 1

DOCKET NO. 50-400

1.0 INTRODUCTION

By letter dated September 27, 1990, as supplemented September 28, 1990, the Carolina Power & Light Company submitted a request for changes to the Shearon Harris Nuclear Power Plant, Unit 1 (Harris).

The Technical Specification changes proposed in this submittal revise the acceptance criteria for Surveillance Requirement 4.7.1.2.1.a.1 associated with the monthly testing on a staggered test basis of the two motor-driven AFW pumps. Specifically, this change revises Surveillance Requirement 4.7.1.2.1.a.1 to require that the motor-driven AFW pumps be verified to develop a differential pressure that (when temperature compensated to 70°F) is greater than or equal to 1558 psid at a recirculation flow of greater than or equal to 50 gpm. The existing surveillance requirement verifies that the motor-driven AFW pumps develop a discharge pressure of greater than or equal to 1590 psig at a recirculation flow of greater than or equal to 50 gpm. This acceptance criteria did not consider the effect of condensate storage tank (CST) level or temperature when specifying a discharge pressure of 1590 psig. A Temporary Waiver of Compliance was issued on September 28, 1990, to permit utilization of this change until the amendment could be issued.

2.0 EVALUATION

The AFW pumps are required to be demonstrated operable at least once per 31 days on a staggered test basis. This equates to a quarterly test. The test requires that each motor-driven pump develop a discharge pressure of greater than or equal to 1590 psig at a recirculation flow of greater than or equal to 50 gpm.

This surveillance is intended to verify that each motor-driven AFW pump is capable of delivering a total feedwater flow of 475 gpm at a pressure of 1217 psig to the entrance of the steam generators. This capacity, in conjunction with the turbine driven AFW pump, 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.

9010160193 901005
PDR ADOCK 05000400
P PDC

The pump surveillance is conducted with the flow paths from the pump discharge to the steam generators isolated. A small installed recirculation line passes the minimum required flow back to the condensate storage tank. This approach was taken in lieu of directing the pumps' discharge to the steam generators in order to minimize the number of thermal cycles on the steam generators' AFW nozzles.

This technique results in running the motor-driven AFW pump near its shut off head. The assumption is that by verifying a sufficiently high discharge pressure at a flow significantly less than that required for the pump to perform its design function, one would be able to plot a point and compare it with respect to the pump operating curve. As long as the pressure exceeded the value in Technical Specifications, the pump could perform its design function.

When surveillance measurements were made locally rather than on the installed instrumentation to reduce pressure fluctuations, the pump pressure did not pass the surveillance requirement. In diagnosing the problem, it was noted that the limit did not adequately account for level or temperature in the condensate storage tank (CST). The licensee established flow to the steam generator and measured six data points on the vendor pump curve to verify that pump performance is adequate to meet system design. By letter dated September 27, 1990, the licensee proposed that the surveillance requirement 4.7.1.2.1.a.1 be changed to require that the motor-driven AFW pumps be verified to develop a differential pressure that (when temperature compensated to 70°F) is greater than or equal to 1558 psid at a recirculation flow of greater than or equal to 50 gpm.

The staff has reviewed the proposed change to the surveillance requirement and the testing performed during the surveillance. The licensee has demonstrated that the pump is capable of supplying its design flow and the proposed surveillance will compensate for water temperature and CST level. Therefore, the staff finds the proposed surveillance requirement on the motor-driven auxiliary feedwater pumps is acceptable.

3.0 STATEMENT OF EMERGENCY CIRCUMSTANCES

In the past, the values recorded for the AFW pumps discharge pressure for surveillance 4.7.1.2.1.a.1 have been acquired from installed instrumentation. The licensee suspects that the high differential pressure (approximately 650 psid) across the pumps' normally open discharge isolation valves that are closed for this test has recently resulted in a small amount of leak-by. This suspected leak-by results in small pressure surges in the line causing the pump discharge check valve to chatter which increases the magnitude of the surges. In order to achieve a dampened pressure reading at the pump discharge, an electronically dampened pressure transmitter was installed at the pump discharge. When the surveillance was conducted with the locally installed pressure transmitter a discharge pressure of 1587 psig was

recorded which falls below the TS value of 1590. This made the 'A' train motor driven AFW pump inoperable at 1:08 p.m. Tuesday, September 25, 1990. The 72 hour limiting condition for operation requires that the plant enter the six hour shutdown portion of the action statement if the pump is not restored to an operable condition by 1:08 p.m. Friday, September 28, 1990.

During testing, it was noted that the surveillance requirement did not account for variations of water level or temperature in the condensate storage tank (CST). The licensee measured six points on the pump head curve which confirmed that the pump was capable of supplying its design flow and demonstrated that the surveillance failure had no safety significance.

The licensee requested the change by phone and submitted the TS amendment and request for Temporary Waiver of Compliance on September 27, 1990. This event was not foreseen due to the repeated successful performance of this surveillance since Harris began commercial operation on May 2, 1987. The pump underwent a detailed inspection during the last refueling outage in the fall of 1989 and was found to be in satisfactory condition. Since the pump had a history of successfully passing this surveillance, the licensee could not reasonably have anticipated that a combination of specially installed instrumentation and unaccounted for level and temperature conditions in the CST would result in a failed surveillance. Therefore, the staff has determined that the licensee has not abused the emergency provisions of 10 CFR 50.91(a)(5) in this instance. Since the issuance of this amendment will prevent the unnecessary shutdown of the plant, the Commission has determined that there are emergency circumstances warranting prompt approval.

4.0 FINAL DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATION

The Commission's regulations in 10 CFR 50.92 state that the Commission may make a final determination that a license amendment involves no significant hazards consideration if operability of the facility in accordance with the proposed changes would not:

1. involve a significant increase in the probability or consequences of any accident previously evaluated, or

2. create the possibility of a new or different kind of accident from any accident previously evaluated, or

3. involve a significant reduction in a margin of safety.

The licensee evaluated the request in light of these three criteria.

In regard to the first criterion, the licensee determined that the proposed amendment would not involve a significant increase in the probability or consequences of any accident previously evaluated since no safety-related equipment, safety function or plant operation will be changed as a result on this proposed change. The change does not change the design, materials or construction standards applicable to the the AFW pumps.

In regard to the second criterion, the licensee determined that the proposed amendment will not create the possibility for a new or different kind of accident from any accident previously evaluated since only the surveillance requirement is changed. The change to the surveillance requirement is in a form so that the criterion is independent of CST level and may be corrected for CST water temperature.

In regard to the third criterion, the licensee determined that the proposed amendment will not involve a significant reduction in margin of safety since the proposed change continues to ensure that each AFW pump is capable of delivering a total feedwater flow of 475 gpm at a pressure of 1217 psig to the entrance of the steam generator. This capacity, in conjunction with the turbine-driven AFW pump, is sufficient to ensure that feedwater flow is available to remove decay heat and reduce the reactor coolant system temperature to less than 350°F where the residual heat removal system may be placed into operation.

The staff has evaluated the licensee's submittal and agrees that it satisfies the standards of 10 CFR 50.92. Therefore, the staff has made a final determination that the proposed amendment involves no significant hazards consideration.

5.0 STATE CONSULTATION

The appropriate representative of the State of North Carolina was notified of this amendment. The State of North Carolina has no comments.

6.0 ENVIRONMENTAL CONSIDERATION

This 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 and changes the surveillance requirements. 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 made a final no significant hazards consideration finding with respect to this amendment. 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.

7.0 CONCLUSION

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

Dated: October 5, 1990

Principal Contributors: R. Becker