September 8, 19

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

SUBJECT: ISSUANCE OF AMENDMENT NO. 81 TO FACILITY OPERATING LICENSE NO. NPF-63 REGARDING TECHNICAL SPECIFICATION CHANGE FOR THE DEPRESSURIZATION AND COOLING SYSTEMS - SHEARON HARRIS NUCLEAR POWER PLANT, UNIT 1 (TAC NO. M98857)

Dear Mr. Scarola:

The Nuclear Regulatory Commission has issued Amendment No. 81 to Facility Operating License No. NPF-63 for the Shearon Harris Nuclear Power Plant, Unit No. 1, in response to your request dated May 16, 1997, as supplemented by letter dated June 29, 1998. This amendment revises Technical Specification (TS) surveillance requirement 4.6.2.3a.2 by reducing the required Emergency Service Water flow rate that must be verified once every 31 days, from 1425 gallons per minute (gpm) to 1300 gpm.

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:

Scott C. Flanders, Project Manager
Project Directorate II-1
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Docket No. 50-400

Enclosures:
1. Amendment No. 81 to NPF-63
2. Safety Evaluation

cc w/enclosures:
See next page

*See previous concurrence

G:\HARRIS\HAR98857.AMD

Distribution: See next page

OFFICE	PM:PDII-1	LA:PDII-1	BC:SPLB*	OGC	D:PDII-1
NAME	SFlanders	EDunnington EJD	TMarsh	C Marco	PKuo
DATE	8/25/98	8/25/98	8/24/98	8/27/98	9/8/98
COPY	Yes/No	Yes/No	Yes/No	Yes/No	

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AMENDMENT NO. 81 TO FACILITY OPERATING LICENSE NO. NPF-63 - HARRIS, UNIT 1

Docket File
PUBLIC
PDII-1 Reading
J. Zwolinski
OGC
G. Hill (2)
L. Marsh
G. Hubbard
M. Hart
ACRS
L. Plisco, RII

cc: Harris Service List

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OFFICIAL RECORD

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

September 8, 1998

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

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Office of Nuclear Reactor Regulation

Docket No. 50-400

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cc w/enclosures:
See next page

cc:

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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. 81
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 May 16, 1997, as supplemented by letter dated June 29, 1998, 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:

(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. 81 , 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

Pao-Tsin Kuo, Acting 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: September 8, 1998

ATTACHMENT TO LICENSE AMENDMENT NO. 81

FACILITY OPERATING LICENSE NO. NPF-63

DOCKET NO. 50-400

Replace the following pages of the Appendix A Technical Specifications with the enclosed pages. The revised areas are indicated by marginal lines.

Remove Pages	Insert Pages
3/4 6-13	3/4 6-13
B 3/4 6-3	B 3/4 6-3
B 3/4 6-4	B 3/4 6-4

CONTAINMENT COOLING SYSTEM

LIMITING CONDITION FOR OPERATION

3.6.2.3 Four containment fan coolers (AH-1, AH-2, AH-3, and AH-4) shall be OPERABLE with one of two fans in each cooler capable of operation at low speed. Train SA consists of AH-2 and AH-3. Train SB consists of AH-1 and AH-4.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTION:

a. With one train of the above required containment fan coolers inoperable and both Containment Spray Systems OPERABLE, restore the inoperable train of fan coolers to OPERABLE status within 7 days or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

b. With both trains of the above required containment fan coolers inoperable and both Containment Spray Systems OPERABLE, restore at least one train of fan coolers to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. Restore both above required trains of fan coolers to OPERABLE status within 7 days of initial loss or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

c. With one train of the above required containment fan coolers inoperable and one Containment Spray System inoperable, restore the inoperable Spray System to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. Restore the inoperable train of containment fan coolers to OPERABLE status within 7 days of initial loss or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.6.2.3 Each train of containment fan coolers shall be demonstrated OPERABLE:

a. At least once per 31 days by:

1. Starting each fan train from the control room, and verifying that each fan train operates for at least 15 minutes, and

2. Verifying a cooling water flow rate, after correction to design basis service water conditions, of greater than or equal to 1300 gpm to each cooler.

b. At least once per 18 months by verifying that each fan train starts automatically on a safety injection test signal.

CONTAINMENT VENTILATION SYSTEM (Continued)

gross leakage failures could develop. The 0.60 L_a leakage limit of Specification 3.6.1.2b. shall not be exceeded when the leakage rates determined by the leakage integrity tests of these valves are added to the previously determined total for all valves and penetrations subject to Type B and C tests.

3/4.6.2 DEPRESSURIZATION AND COOLING SYSTEMS

3/4.6.2.1 CONTAINMENT SPRAY SYSTEM

The OPERABILITY of the Containment Spray System ensures that containment depressurization and cooling capability will be available in the event of a LOCA or steam line break. The pressure reduction and resultant lower containment leakage rate are consistent with the assumptions used in the safety analyses.

The Containment Spray System and the Containment Fan Coolers are redundant to each other in providing post-accident cooling of the containment atmosphere. However, the Containment Spray System also provides a mechanism for removing iodine from the containment atmosphere and therefore the time requirements for restoring an inoperable spray system to OPERABLE status have been maintained consistent with that assigned other inoperable ESF equipment.

3/4.6.2.2 SPRAY ADDITIVE SYSTEM

The OPERABILITY of the Spray Additive System ensures that sufficient NaOH is added to the containment spray in the event of a LOCA. The limits on NaOH volume and concentration ensure a pH value of between 8.5 and 11.0 for the solution recirculated within containment after a LOCA. This pH band minimizes the evolution of iodine and minimizes the effect of chloride and caustic stress corrosion on mechanical systems and components. The contained solution volume limit includes an allowance for solution not usable because of tank discharge line location or other physical characteristics. These assumptions are consistent with the iodine removal efficiency assumed in the safety analyses.

The maximum and minimum volumes for the Spray Additive Tank are based on the analytical limits. The specified indicated levels used for surveillance include instrument uncertainties and unusable tank volume.

3/4.6.2.3 CONTAINMENT COOLING SYSTEM

The OPERABILITY of the Containment Fan Coolers ensures that adequate heat removal capacity is available when operated in conjunction with the Containment Spray Systems during post-LOCA conditions.

ESW flowrate to the Containment Fan Coolers will vary based on reservoir level. Acceptable ESW flowrate is dependent on the number of heat exchanger tubes in service. Surveillance test acceptance criteria should be adjusted for these factors.

The Containment Fan Coolers and the Containment Spray System are redundant to each other in providing post-accident cooling of the containment atmosphere.

As a result of this redundancy in cooling capability, the allowable out-of-service time requirements for the Containment Fan Coolers have been appropriately adjusted. However, the allowable out-of-service time requirements for the Containment Spray System have been maintained consistent with that assigned other inoperable ESF equipment since the Containment Spray System also provides a mechanism for removing iodine from the containment atmosphere.

3/4.6.3 CONTAINMENT ISOLATION VALVES

The OPERABILITY of the containment isolation valves ensures that the containment atmosphere will be isolated from the outside environment in the event of a release of radioactive material to the containment atmosphere or pressurization of the containment and is consistent with the requirements of General Design Criteria 54 through 57 of Appendix A to 10 CFR Part 50. Containment isolation within the time limits specified for those isolation valves designed to close automatically ensures that the release of radioactive material to the environment will be consistent with the assumptions used in the analyses for a LOCA.

3/4.6.4 COMBUSTIBLE GAS CONTROL

The OPERABILITY of the equipment and systems required for the detection and control of hydrogen gas ensures that this equipment will be available to maintain the hydrogen concentration within containment below its flammable limit during post-LOCA conditions. Either recombiner unit is capable of controlling the expected hydrogen generation associated with: (1) zirconium-water reactions, (2) radiolytic decomposition of water, and (3) corrosion of metals within containment. This hydrogen control system is consistent with the recommendations of Regulatory Guide 1.7, "Control of Combustible Gas Concentrations in Containment Following a LOCA," Rev. 2, November 1978.

3/4.6.5 VACUUM RELIEF SYSTEM

The OPERABILITY of the primary containment to atmosphere vacuum relief valves ensures that the containment internal pressure does not become more negative than -1.93 psig. This condition is necessary to prevent exceeding the containment design limit for internal vacuum of -2 psig.

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 May 16, 1997, as supplemented by letter dated June 29, 1998, Carolina Power and Light Company (CP&L, the licensee) submitted to the NRC a proposed revision to the Harris Nuclear Plant (HNP) Technical Specifications (TS) 3/4.6.2, "Depressurization and Cooling Systems," and its associated TS Bases. TS 4.6.2.3.a.2 currently requires, at least once per 31 days, verification of a cooling water flow rate of greater than or equal to 1425 gpm to each Containment Fan Cooler (CFC). The proposed revision would reduce the existing requirement for the service water cooling water flow rate to each CFC from 1425 gpm to 1300 gpm. Accordingly, the TS Bases would be changed to clarify the above surveillance requirement change. The June 29, 1998, supplemental letter provided clarifying information only, and did not change the initial no significant hazards consideration determination.

2.0 EVALUATION

The purpose of the CFCs is to remove heat from the containment following a design basis accident to protect equipment and maintain containment integrity. Cooling water to the CFCs is provided by the Emergency Service Water (ESW) system, and the heat removed is eventually dissipated in the auxiliary reservoir. The basis for TS 4.6.2.3.a.2 is to ensure that adequate heat removal capacity is available, when the CFCs are operated in conjunction with the Containment Spray Systems, to prevent the pressure and temperature inside containment from exceeding its design rating after a postulated Large-Break Loss-of-Coolant Accident (LBLOCA) or Main Steam Line Break (MSLB). The licensee states that, as currently written, TS 4.6.2.3.a.2 does not address the effects of reservoir level, tube plugging or system configuration, nor is it based on the existing HNP containment analyses. The proposed cooling water flow rate of 1300 gpm takes these factors into account.

The current TS cooling water flow rate, 1425 gpm, to the CFCs is based on a measured value from the final testing (during the licensing of the facility) of the ESW system in 1986. The 1425 gpm flow rate was measured under test conditions which did not account for the minimum credible reservoir level. In 1995, CP&L decided to revise its containment analyses after identifying that the assumed mass-energy release history and the fouling factors used for the CFCs were non-conservative. Also, the licensee performed an hydraulic model of the ESW system and determined that the lowest expected flow rate to the CFCs would be 1360 gpm, assuming a minimum reservoir (UHS) level of 205.7 feet mean sea level. The current TS require the reservoir level to be greater than or equal to 215 feet mean sea level. The licensee then used the 1360 gpm as an input to the containment analyses. According to the licensee's containment analyses, a cooling water flow rate of 1360 gpm can provide sufficient heat

removal capability for both an MSLB or an LBLOCA, assuming only one bundle of tubes (16 tubes) per safety train is plugged.

Subsequent to the containment analyses discussed above, an additional engineering evaluation performed by the licensee concluded that a cooling water flow rate of 1300 gpm can provide a heat removal capacity greater than or equal to the required heat removal capacity assuming only 8 tubes per train are plugged for the MSLB, and only 5 tubes per train are plugged for the LBLOCA. This engineering evaluation is discussed along with the containment analyses in section 6.2C of the HNP Final Safety Analysis Report. Based on the information provided by the licensee, the staff concludes that the lower flow rate to the CFCs will satisfy the TS bases requirements as long as the number of plugged tubes does not exceed 5 per train. The licensee states that a tube plugging limit of 5 tubes per train will be captured in a revision to an engineering periodic test procedure. Furthermore, because section 6.2C of the FSAR clearly states that a flow rate of 1300 gpm can provide adequate cooling with 5 tubes plugged, a 10 CFR 50.59 evaluation would need to be performed prior to changing the CFCs tube plugging limits. Therefore, the staff finds that reducing the cooling water flow rate to 1300 gpm is acceptable, noting that the licensee will be controlling the tube plugging limit to 5 tubes per train.

3.0 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.

4.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a surveillance requirement. 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 (63 FR 14485). 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.

5.0 CONCLUSION

Based on review of the assumptions and inputs to the licensee's calculations, the staff concludes that reducing the cooling water flow rate to the CFCs to 1300 gpm per CFC is acceptable.

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: M. Hart

Date: September 8, 1998