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SUBJECT: Application for amend to license NPF-63, revising TS to incorporate analytical methodology references in TS 6.9.1.6.2 which are used to determine core operating limits.

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Carolina Power & Light Company  
PO Box 165  
New Hill NC 27562

James Scarola  
Vice President  
Harris Nuclear Plant

AUG - 4 1999

SERIAL: HNP-99-107  
10 CFR 50.90

United States Nuclear Regulatory Commission  
ATTENTION: Document Control Desk  
Washington, DC 20555

SHEARON HARRIS NUCLEAR POWER PLANT  
DOCKET NO. 50-400/LICENSE NO. NPF-63  
REQUEST FOR LICENSE AMENDMENT  
ADDITION OF METHODOLOGY REFERENCES TO CORE OPERATING LIMITS REPORT

Dear Sir or Madam:

In accordance with the Code of Federal Regulations, Title 10, Part 50.90, Carolina Power & Light Company (CP&L) requests a revision to the Technical Specifications (TS) for the Harris Nuclear Plant (HNP). The proposed amendment revises the TS to incorporate analytical methodology references in TS 6.9.1.6.2 which are used to determine core operating limits. These analytical methodologies are documented in topical reports which have been accepted by the Nuclear Regulatory Commission for referencing in licensing applications.

Enclosure 1 provides a description of the proposed changes and the basis for the changes.

Enclosure 2 details, in accordance with 10 CFR 50.91(a), the basis for CP&L's determination that the proposed changes do not involve a significant hazards consideration.

Enclosure 3 provides an environmental evaluation which demonstrates that the proposed amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), no environmental assessment is required for approval of this amendment request.

Enclosure 4 provides page change instructions for incorporating the proposed revisions.

Enclosure 5 provides the proposed TS pages.

CP&L requests approval of the proposed amendment by January 15, 2000 to support Cycle 10 core reload analyses. CP&L also requests that the proposed amendment be issued such that implementation will occur prior to core reload associated with Refueling Outage 9, currently scheduled to commence in April 2000.

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In accordance with 10 CFR 50.91(b), CP&L is providing a copy of this license amendment request to the State of North Carolina.

Please refer any questions regarding this submittal to Mr. J. H. Eads at (919) 362-2646.

Sincerely,

*James Scarola*

AEC

Enclosures:

1. Basis for Change Request
2. 10 CFR 50.92 Evaluation
3. Environmental Considerations
4. Page Change Instructions
5. Technical Specification Pages

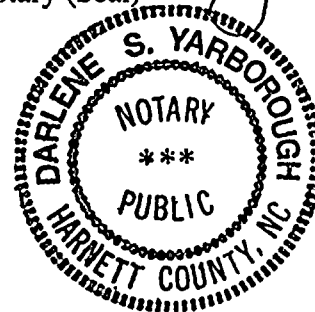
James Scarola, having been first duly sworn, did depose and say that the information contained herein is true and correct to the best of his information, knowledge and belief; and the sources of his information are employees, contractors, and agents of Carolina Power & Light Company.

*Darlene S. Yarbrough*

Notary (Seal)

My commission expires: 2-6-2000

c: Mr. J. B. Brady, NRC Sr. Resident Inspector  
Mr. Mel Fry, Director, N.C. DEHNR  
Mr. R. J. Laufer, NRC Project Manager  
Mr. L. A. Reyes, NRC Regional Administrator



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BASIS FOR CHANGE REQUEST

Background

The Harris Nuclear Plant (HNP) Technical Specification (TS) Section 6.9.1.6 provides information regarding the Core Operating Limits Report (COLR). HNP plant procedure PLP-106, "Technical Specification Equipment List Program and Core Operating Limits Report," implements the cycle-specific core parameter limits. These limits have been developed using NRC-approved methodologies specified in TS 6.9.1.6. TS 6.9.1.6.2 requires that the analytical methods used to determine the core operating limits shall be those previously reviewed and approved by the NRC at the time the reload analyses are performed, and the approved revision number shall be identified in the COLR.

Proposed Changes

The HNP Technical Specifications (TS) contain analytical methodology references which are used to determine core operating limits. TS 6.9.1.6.2.e will be revised to reflect that the Steam Line Break (SLB) Methodology is defined by the following: EMF-84-093(A) and ANF-84-093(A). TS 6.9.1.6.2.f will be changed to reflect that the Large Break Loss of Coolant Accident (LBLOCA) Evaluation utilizes the SEM/PWR Model as defined by the following: EMF-2087(A), XN-NF-81-58(A), ANF-81-58(A), XN-NF-82-06(A), ANF-88-133(A), XN-NF-85-92(A), and EMF-92-116(A). The following reference will be added as 6.9.1.6.2.o: EMF-96-029(A).

Basis

The analytical methodologies being added to the HNP TS are documented in topical reports which have been accepted by the Nuclear Regulatory Commission for referencing in licensing applications.

The SLB methodology utilizes EMF-84-093(A), latest Revision, "Steam Line Break Methodology for PWRs," Siemens Power Corporation, Richland WA 99352, which was accepted by the NRC on February 16, 1999. The SLB methodology also utilizes ANF-84-093(A), latest Revision and Supplements, "Steam Line Break Methodology for PWRs," Advanced Nuclear Fuels Corporation, Richland WA 99352, which was accepted by the NRC on December 28, 1988. These methodologies are utilized in the development of the core operating limits for TS 3.1.1.3 - Moderator Temperature Coefficient, TS 3.1.3.5 - Shutdown Bank Insertion Limits, TS 3.1.3.6 - Control Bank Insertion Limits, and TS 3.2.3 - Nuclear Enthalpy Rise Hot Channel Factor.

The LBLOCA methodology employs the SEM/PWR model, which was accepted by the NRC for referencing in licensing applications on June 15, 1999. Listed below are the methodologies defining this model, along with their respective acceptance dates by the NRC. These methodologies are utilized in the development of the core operating limits for TS 3.2.1 - Axial Flux Difference, TS 3.2.2 - Heat Flux Hot Channel Factor, and TS 3.2.3 - Nuclear Enthalpy Rise Hot Channel Factor.

- EMF-2087(A), latest Revision, "SEM/PWR-98: ECCS Evaluation Model for PWR LBLOCA Applications," Siemens Power Corporation, Richland WA 99352, accepted by the NRC on June 15, 1999.
- XN-NF-81-58(A), latest Revision and Supplements, "RODEX2 Fuel Rod Thermal-Mechanical Response Evaluation Model," Exxon Nuclear Company, Richland WA 99352, accepted by the NRC on November 16, 1983.
- ANF-81-58(A), latest Revision and Supplements, "RODEX2 Fuel Rod Thermal Mechanical Response Evaluation Model," Advanced Nuclear Fuels Corporation, Richland WA 99352, accepted by the NRC on April 10, 1990.
- XN-NF-82-06(A), latest Revision, "Qualification of Exxon Nuclear Fuel for Extended Burnup," Exxon Nuclear Company, Richland WA 99352, accepted by the NRC on July 18, 1986.
- ANF-88-133(A), latest Revision and Supplements, "Qualification of Advanced Nuclear Fuels' PWR Design Methodology for Rod Burnups of 62 GWd/MTU," Advanced Nuclear Fuels Corporation, Richland WA 99352, accepted by the NRC on September 9, 1991.
- XN-NF-85-92(A), latest Revision, "Exxon Nuclear Uranium Dioxide/Gadolinia Irradiation Examination and Thermal Conductivity Results," Exxon Nuclear Company, Richland WA 99352, accepted by the NRC on September 26, 1986.
- EMF-92-116(A), latest Revision, "Generic Mechanical Design Criteria for PWR Fuel Designs," Siemens Power Corporation, Richland WA 99352, accepted by the NRC on February 2, 1999.

EMF-96-029 (A), Volume 1, Volume 2 and Attachment, "Reactor Analysis Systems for PWRs," Siemens Power Corporation, Richland WA 99352, was accepted by the NRC on October 29, 1996. This topical report presents a core physics computer code system for pressurized water reactors (PWRs). It is utilized in the development of the core operating limits for TS 3.1.1.2 - Shutdown Margin - Modes 3, 4 and 5, TS 3.1.1.3 - Moderator Temperature Coefficient, TS 3.1.3.5 - Shutdown Bank Insertion Limits, TS 3.1.3.6 - Control Bank Insertion Limits, TS 3.2.1 - Axial Flux Difference, TS 3.2.2 - Heat Flux Hot Channel Factor, TS 3.2.3 - Nuclear Enthalpy Rise Hot Channel Factor, and TS 3.9.1 - Boron Concentration.

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10 CFR 50.92 EVALUATION

The Commission has provided standards in 10 CFR 50.92(c) for determining whether a significant hazards consideration exists. A proposed amendment to an operating license for a facility involves no significant hazards consideration if operation of the facility in accordance with the proposed amendment would not: (1) involve a significant increase in the probability or consequences of an accident previously evaluated, (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. Carolina Power & Light Company has reviewed this proposed license amendment request and determined that its adoption would not involve a significant hazards determination. The basis for this determination is provided below.

Proposed Changes

The HNP Technical Specifications (TS) contain analytical methodology references which are used to determine core operating limits. TS 6.9.1.6.2.e will be revised to reflect that the Steam Line Break (SLB) Methodology is defined by the following: EMF-84-093(A) and ANF-84-093(A). TS 6.9.1.6.2.f will be changed to reflect that the Large Break Loss of Coolant Accident (LBLOCA) Evaluation utilizes the SEM/PWR Model as defined by the following: EMF-2087(A), XN-NF-81-58(A), ANF-81-58(A), XN-NF-82-06(A), ANF-88-133(A), XN-NF-85-92(A), and EMF-92-116(A). The following reference will be added as 6.9.1.6.2.o: EMF-96-029(A).

Basis

The changes do not involve a significant hazards consideration for the following reasons:

1. The proposed license amendment does not involve a significant increase in the probability or consequences of an accident previously evaluated.

The proposed changes incorporate additional references to methodologies used to evaluate core operating limits. These methodologies have been approved for use by the NRC. Plant structures, systems, and components will not be operated in a different manner as a result of these proposed changes and no physical modifications to equipment are involved. Adding these references to the Core Operating Limits Report section of Technical Specifications does not increase the probability or consequences of an accident previously evaluated.



2. The proposed amendment does not create the possibility of a new or different kind of accident from any accident previously evaluated.

The proposed changes incorporate additional references to methodologies used to evaluate core operating limits. These methodologies have been approved for use by the NRC. Plant structures, systems, and components will not be operated in a different manner as a result of these proposed changes and no physical modifications to equipment are involved. Adding these references to the Core Operating Limits Report section of Technical Specifications does not create the possibility of a new or different type of accident from any previously evaluated.

3. The proposed amendment does not involve a significant reduction in the margin of safety.

The proposed changes incorporate additional references to methodologies used to evaluate core operating limits. These methodologies have been approved for use by the NRC. Plant structures, systems, and components will not be operated in a different manner as a result of these proposed changes and no physical modifications to equipment are involved. Adding these references to the Core Operating Limits Report section of Technical Specifications does not involve a reduction in the margin of safety.

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ENVIRONMENTAL CONSIDERATIONS

10 CFR 51.22(c)(9) provides criteria for licensing and regulatory actions eligible for categorical exclusion from performing an environmental assessment. A proposed amendment to an operating license for a facility requires no environmental assessment if operation of the facility in accordance with the proposed amendment would not: (1) involve a significant hazards consideration; (2) result in a significant change in the types or significant increase in the amounts of any effluents that may be released offsite; (3) result in a significant increase in individual or cumulative occupational radiation exposure. Carolina Power & Light Company has reviewed this request and determined that the proposed 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 needs to be prepared in connection with the issuance of the amendment. The basis for this determination is provided below.

Proposed Changes

The HNP Technical Specifications (TS) contain analytical methodology references which are used to determine core operating limits. TS 6.9.1.6.2.e will be revised to reflect that the Steam Line Break (SLB) Methodology is defined by the following: EMF-84-093(A) and ANF-84-093(A). TS 6.9.1.6.2.f will be changed to reflect that the Large Break Loss of Coolant Accident (LBLOCA) Evaluation utilizes the SEM/PWR Model as defined by the following: EMF-2087(A), XN-NF-81-58(A), ANF-81-58(A), XN-NF-82-06(A), ANF-88-133(A), XN-NF-85-92(A), and EMF-92-116(A). The following reference will be added as 6.9.1.6.2.o: EMF-96-029(A).

Basis

The change meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9) for the following reasons:

1. As demonstrated in Enclosure 2, the proposed amendment does not involve a significant hazards consideration.
2. The proposed amendment does not result in a significant change in the types or significant increase in the amounts of any effluents that may be released offsite. The proposed changes do not involve any new equipment or require existing systems to perform a different type of function than they are currently designed to perform. The changes do not introduce any new effluents or increase the quantities of existing effluents. As such, the changes cannot affect the types or amounts of any effluents that may be released offsite.

3. The proposed amendment does not result in a significant increase in individual or cumulative occupational radiation exposure. The proposed change does not result in any physical plant changes or new surveillances which would require additional personnel entry into radiation controlled areas. Therefore, the amendment will not result in an increase in individual or cumulative occupational radiation exposure.

Enclosure 4 to SERIAL HNP-99-107

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PAGE CHANGE INSTRUCTIONS

<u>Removed Page</u>	<u>Inserted Page</u>
6-24a	6-24a
6-24b	6-24b
6-24c	6-24c