Progress Energy

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U. S. Nuclear Regulatory Commission
ATTENTION: Document Control Desk
Washington, DC 20555

SHEARON HARRIS NUCLEAR POWER PLANT
DOCKET NO. 50-400/LICENSE NO. NPF-63
EMERGENCY CORE COOLING SYSTEM EVALUATION CHANGES
ANNUAL AND 30 DAY REPORTS

Ladies and Gentlemen:

In accordance with the provisions of the Code of Federal Regulations, Title 10, Part 50.46 (10 CFR 50.46), "Acceptance criteria for emergency core cooling systems for light-water nuclear power reactors," Carolina Power & Light Company, doing business as Progress Energy Carolinas, Inc., is submitting the attached report of changes to and errors discovered in an acceptable Loss-of-Coolant Accident (LOCA) evaluation model for the Emergency Core Cooling System (ECCS) at the Harris Nuclear Plant (HNP).

The HNP ECCS performance following a Large Break Loss of Coolant Accident (LBLOCA) is calculated for HNP by AREVA NP using the SEM/PWR-98 ECCS Evaluation Model for PWR LBLOCA Applications. The ECCS performance following a Small Break Loss of Coolant Accident (SBLOCA) is calculated for HNP by AREVA NP using the EXEM PWR Small Break Model.

The previous HNP annual report to the NRC, dated May 28, 2008, (Serial: HNP-08-058), regarding changes to or errors discovered in evaluation models documented a SBLOCA peak clad temperature (PCT) of 1650°F and a LBLOCA PCT of 2081°F.

However, a recent change to the approved ECCS model has resulted in a decrease in the HNP PCT for the SBLOCA analysis by an amount greater than 50°F, requiring a report to the NRC within 30 days in accordance with 10 CFR 50.46(a)(3)(ii). Since no other changes to or errors in the evaluation model were identified in the period between the May 28, 2008, submittal and this current report, this submittal also satisfies HNP's requirement for 10 CFR 50.46 annual reporting of evaluation model changes.

Attachment 1 provides a summary of the impact of changes and errors on PCT since the May 2008 report.

Attachment 2 provides a summary of the change or error in the acceptable evaluation model resulting in the SBLOCA model PCT difference of greater than 50°F, as required per 10 CFR 50.46(a)(3)(ii).

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NRR

There have been no change(s) or error(s) associated with the LBLOCA evaluation model since the May 2008 report.

This document contains no new regulatory commitments.

Please refer any questions regarding this submittal to me at (919) 362-3137.

Sincerely,

David H. Corlett
Supervisor - Licensing/Regulatory Programs
Harris Nuclear Plant

DHC/kms

Attachments: 1. Summary of the Impact of Changes/Errors on Peak Clad Temperature in Loss-of-Coolant Accident Evaluation Model
2. Summary of Changes/Errors Associated with the Small Break LOCA Model

cc: Mr. J. D. Austin, NRC Senior Resident Inspector, HNP
Mr. L. A. Reyes, NRC Regional Administrator, Region II
Ms. M. G. Vaaler, NRC Project Manager for HNP

SUMMARY OF THE IMPACT OF CHANGES/ERRORS ON PEAK CLAD TEMPERATURE IN LOSS-OF-COOLANT ACCIDENT EVALUATION MODEL

Harris Nuclear Plant Small Break LOCA
Peak Clad Temperature Summary

	Peak Clad Temperature (°F)
Value Reported 5/28/2008	1650
Reported Error Impact	-64
New SBLOCA PCT Value	1586

Harris Nuclear Plant Large Break LOCA
Peak Clad Temperature Summary

	Peak Clad Temperature (°F)
Value Reported 5/28/2008	2081
Reported Error Impact	0
New LBLOCA PCT Value	2081

SUMMARY OF CHANGES/ERRORS ASSOCIATED WITH THE
SMALL BREAK LOCA MODEL

Error in Current Radiation Heat Transfer Model

AREVA discovered an issue with the radiation heat transfer model of the RELAP code. An incorrect figure, which provides radiation heat transfer data, was incorporated into RELAP in the early 1970s/late 1980s and later into Small Break Loss of Coolant Accident (SBLOCA) methodology used by AREVA for HNP. The error results in an under prediction of the radiation heat transfer. Correction of the error reduces the PCT by 64 °F in the beneficial direction to 1586 °F. Due to the large margin between this result and the 10CFR50.46 limit of 2200 °F, there are no immediate plans to re-analyze the SBLOCA model.