Progress Energy

SERIAL: HNP-05-067
10 CFR 50.46

MAY 2 5 2005

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

Ladies and Gentlemen:

The purpose of this letter is to submit information required by 10 CFR 50.46 for the Harris Nuclear Plant (HNP), of Carolina Power & Light Company (doing business as Progress Energy Carolinas, Inc.), concerning the effect of errors or changes in the application of the Emergency Core Cooling System (ECCS) evaluation models. This letter satisfies the requirement for HNP to submit an annual report in accordance with 10 CFR 50.46(a)(3)(ii).

The HNP ECCS performance following a large break loss of coolant accident (LBLOCA) is calculated by HNP's fuel vendor, Framatome-ANP, 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 Framatome-ANP using the EXEM PWR Small Break Model.

The previous HNP annual report to the NRC was provided by letter dated May 28, 2004, which documented a SBLOCA PCT of 1712°F and a LBLOCA PCT of 2099°F. There have been no errors or changes in the LBLOCA models or results that would require a 30-day report under 10CFR50.46. Attachment 1 provides a summary of the impact of errors on PCT since the May 2004 report. One error was reported to HNP that decreased the SBLOCA PCT by 11°F as described in Attachment 2. Also, two errors were reported to HNP that increased the LBLOCA PCT a total of 3°F as described in Attachment 3. As a result of these errors, the new SBLOCA and LBLOCA PCT values are 1701°F and 2102°F, respectively.

This letter contains no new regulatory commitments. Please contact me if you have any questions regarding this submittal at (919) 362-3137.

Sincerely,

for DHC

D. H. Corlett
Supervisor, Licensing/Regulatory Programs
Harris Nuclear Plant

DHC/rgh

c: Mr. R. A. Musser, NRC Sr. Resident Inspector
Mr. C. P. Patel, NRC Project Manager
Dr. W. D. Travers, NRC Regional Administrator

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Attachment 1

Harris Nuclear Plant Small Break LOCA
Peak Clad Temperature Summary

	Peak Clad Temperature (°F)
Value Reported 5/28/2004	1712
Reported Error Impact	
A. Incorrectly Labeled Reactor Coolant Pump Type	-11
New SBLOCA PCT Value	1701

Harris Nuclear Plant Large Break LOCA
Peak Clad Temperature Summary

	Peak Clad Temperature (°F)
Value Reported 5/28/2004	2099
Reported Error Impact	
A. Containment Heat Structure Mesh Spacing Coordinate Error	+3
B. RFPAC/REFLEX Loss Coefficient Mismatch	0
New LBLOCA PCT Value	2102

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Attachment 2

10 CFR 50.46 Small Break LOCA Model Errors

Incorrectly Labeled Reactor Coolant Pump Type

In response to a condition report, Framatome-ANP reviewed the Harris Nuclear Plant (HNP) Small Break LOCA analysis inputs. This review revealed that the built-in Westinghouse reactor coolant pump data specified for the HNP SBLOCA model was incorrect. As a corrective action, Framatome-ANP calculated an estimate of the change in Peak Cladding Temperature resulting from replacing the built-in generic curves with plant specific curve data. The estimated change was -11˚F.

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Attachment 3

10 CFR 50.46 Large Break LOCA Model Errors

Containment Heat Structures Mesh Spacing Coordinate Error

In response to a condition report, Framatome-ANP reviewed the Harris Nuclear Plant (HNP) Large Break LOCA (LBLOCA) analysis inputs. This review revealed that the mesh spacing coordinates on the right side boundaries of the containment heat structures were erroneously input in the RFPAC/ICECON input to the SEM/PWR-98 analyses for HNP.

The error affected all heat structures that were modeled with multiple regions. The error was made during the initial set-up of the LBLOCA input, so all Harris LBLOCA analyses are affected.

Calculations with corrected inputs were made for the SEM/PWR-98 limiting PCT case, resulting in an estimated PCT impact of +3°F.

Inconsistent Loss Coefficients between RELAP4 and RFPAC/REFLEX

In response to a condition report, Framatome-ANP reviewed the Harris Nuclear Plant (HNP) Large Break LOCA (LBLOCA) analysis inputs. This review revealed that there were three loss coefficient mismatches between RELAP4 and RFPAC/REFLEX codes used in an old, superseded HNP LBLOCA analysis. The current analysis of record correctly matches these loss coefficients, and is therefore not affected by this error.

The first mismatch was that not all of the downcomer, lower core and lower plenum loss coefficients in RELAP4 are included in the downcomer loss coefficient in the RFPAC/REFLEX input. The second and third mismatches were mismatches in the hot leg loss coefficients in the break and intact loops.

For this evaluation of estimated impact, the current analysis of record calculation was rerun for the limiting case to estimate the change in PCT due to the mismatches. The results of the calculation show the estimated PCT impact would have been +5°F. This correction has already been included in the limiting PCT analysis of record and therefore does not impact the reported PCT value.