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SUBJECT: Provides 30-day rept of estimated effect of change in application of small break LOCA ECCS evaluation model. R
 Calculated performance of ECCS continues to meet I
 performance acceptance criteria in 10CFR50.46. D

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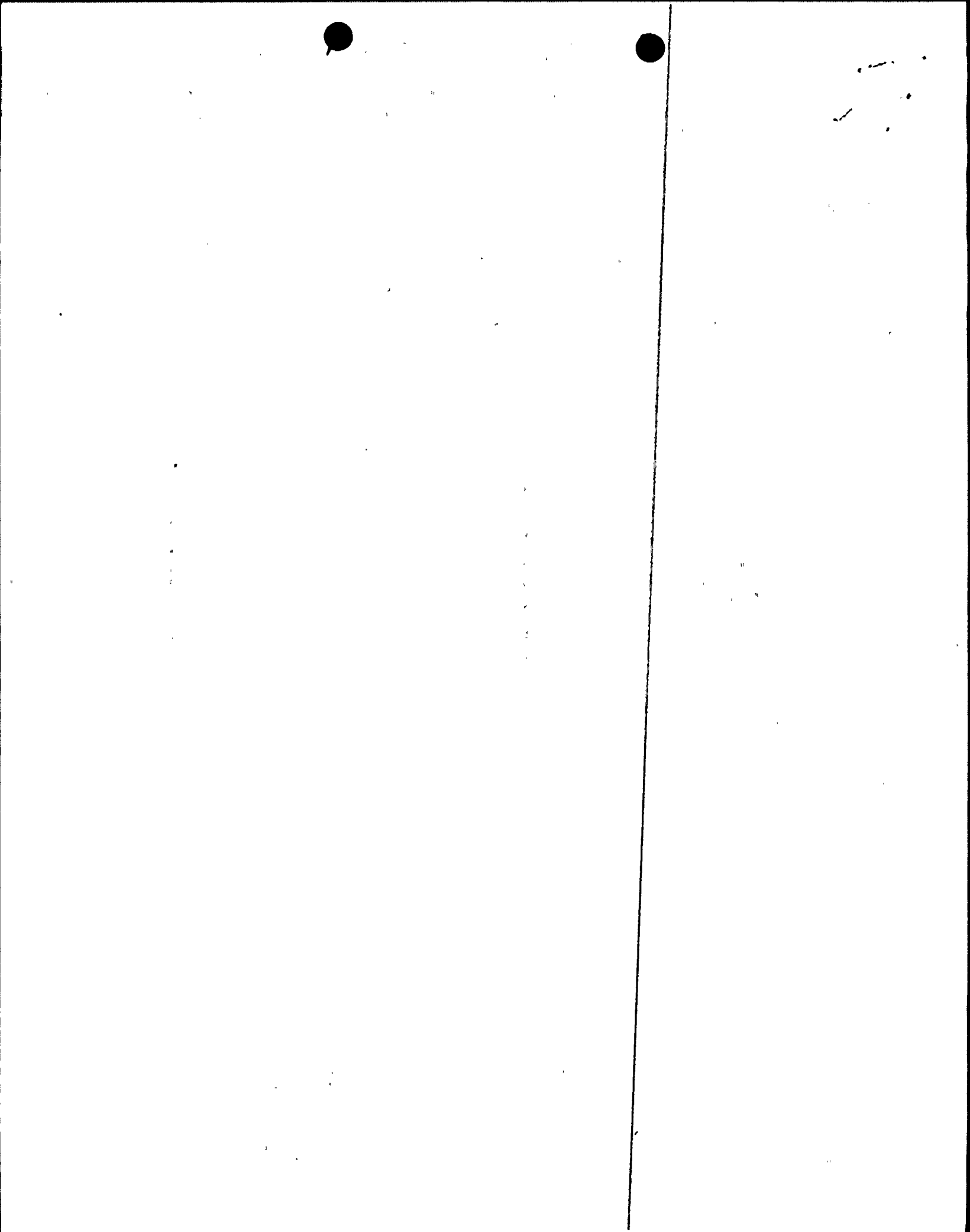
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Carolina Power & Light Company

AUG 26 1992

SERIAL: NLS-92-231
10 CFR 50.46

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
EMERGENCY CORE COOLING SYSTEM EVALUATION MODEL CHANGES

Gentlemen:

The purpose of this letter is to provide a 30-day report pursuant to 10 CFR 50.46(a)(3)(ii) for the Shearon Harris Nuclear Power Plant (SHNPP) regarding the estimated effect of a change in the application of the Small Break LOCA Emergency Core Cooling System (ECCS) evaluation model.

As required by 10 CFR 50.46(a)(3)(ii), CP&L herein provides notification of a significant change in the Peak Clad Temperature (PCT) predicted by the Small Break LOCA ECCS acceptable evaluation model. The significant change is specific to the Small Break LOCA Analysis and has two parts:

1. As part of CP&L's review of the draft Westinghouse Reload Safety Evaluation for Cycle 5, the RCS pressure of 2280 psia used as an initial condition in the Large Break LOCA calculation was questioned. The 2280 psia was based on the traditional 2250 ±30 psia used originally in the FSAR accident analyses. However, this value was not consistent with the current accident analyses allowance for RCS pressure variation. The "Westinghouse Improved Thermal Design Procedure Instrument Uncertainty Methodology for CP&L Shearon Harris Nuclear Power Station," WCAP-12340, presents the current allowance as the combination of a ±38 psi random uncertainty and a -12 psi bias. This same WCAP also increases the ±4°F allowance for variation in RCS average temperature to ±5.3°F.

Evaluation of the corrected allowances for initial RCS pressure and temperature resulted in an increase in large PCT that was not significant (i.e., 6.3°F). However, the inconsistency had a more pronounced impact on the SBLOCA analysis. Evaluation of corrected allowances resulted in a permanent SBLOCA PCT assessment of +17.2°F.

2. While the +17.2°F effect on Small Break LOCA is still below the 50°F criterion for significance, the increase in peak clad temperature has a large detrimental effect with respect to ongoing work at Westinghouse

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regarding fuel cladding burst and coolant flow channel blockage¹. As such, Westinghouse introduced a compensating change in the Small Break LOCA evaluation to reduce PCT. This compensating change utilized axial core power distribution (i.e., Axial Offset) margin. The analysis of record was performed with a +30% Axial Offset. Using internal Westinghouse sensitivities, a PCT credit of 75°F was obtained by reducing the analysis Axial Offset (for full-power operation) to +25%. The new analysis basis is still very conservative compared to the Axial Offset limits imposed in the Core Operating Limits Report (COLR). At full power, the COLR does not allow an Axial Offset above +7%.


In summary, the change to the Small Break LOCA permanent PCT is :

	1981.1°F
	+ 17.2
	- 75.0
	<hr/>
	1923.3°F

The calculated performance of the SHNPP ECCS continues to meet the performance acceptance criteria specified in 10 CFR 50.46. As stated in our February 19, 1992 letter, CP&L plans to reanalyze both the Large and Small Break LOCA events prior to Cycle 6 for SHNPP, to coincide with a change in nuclear fuel vendors. Accordingly, these analyses of record will be approved and in place to support Refueling Outage No. 5, currently scheduled to begin in March 1994.

Questions regarding this matter may be referred to Mr. R. W. Prunty at (919) 546-7318.

Yours very truly,


for D. C. McCarthy
Manager
Nuclear Licensing Section

SDC/sdc

cc: Mr. S. D. Ebnetter
Mr. N. B. Le
Mr. J. E. Tedrow

¹ ET-NRC-92-3647, "Interim Report of a Deviation or Failure to Comply Pursuant to 10 CFR 21.21(a)(2)," December 20, 1991 from S. R. Tritch (W) to NRC.



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