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

H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2
 DOCKET NO. 50-261/LICENSE NO. DPR-23

**REPORT OF CHANGES TO OR ERRORS DISCOVERED
 IN AN ACCEPTABLE LOSS-OF-COOLANT ACCIDENT EVALUATION
 MODEL APPLICATION FOR THE EMERGENCY CORE COOLING SYSTEM**

Ladies and Gentlemen:

In accordance with the provisions of the Code of Federal Regulations, Title 10, Part 50.46 (10 CFR 50.46), Carolina Power and Light Company, also known as Progress Energy Carolinas, Inc. (PEC), is submitting the attached report of changes to and errors discovered in an acceptable Loss-of-Coolant Accident (LOCA) evaluation model (EM) for the Emergency Core Cooling System at the H. B. Robinson Steam Electric Plant (HBRSEP), Unit No. 2. The applicable LOCA EMs are referenced in the HBRSEP, Unit No. 2, Core Operating Limits Report. Changes to or errors discovered in EMs and EM applications were previously reported to the Nuclear Regulatory Commission by letter dated December 13, 2007.

This submittal satisfies both the annual notification and the notification of a significant change as required by 10 CFR 50.46(a)(3)(ii). For the Small Break LOCA (SBLOCA), the non-significant changes and error corrections in the Framatome-ANP EXEM PWR SBLOCA EM since the last annual report are provided in Attachment I. The effects of these non-significant changes and error corrections on HBRSEP, Unit No. 2, peak cladding temperature (PCT) estimates are also summarized in Attachment I. There were no significant changes or errors for the SBLOCA.

For the Large Break LOCA (LBLOCA), HBRSEP, Unit No. 2, is employing for the first time the Realistic LBLOCA model "EMF-2103(P)(A), Revision 0," as the EM of record with the startup for Operating Cycle No. 26 (Mode 4 entered on November 2, 2008). The change to EMF-2103(P)(A), Revision 0, has resulted in a significant change in the calculated PCT from the previously used EM. The cumulative change is summarized in Attachment I. This change in EM results in a new baseline value for PCT for the LBLOCA. The cumulative impact of subsequent changes/errors will be compared to this new baseline value. There is no reanalysis or other corrective action planned because the changes result from changing to another approved methodology, and the changes and errors result in a net improvement in margin to PCT limits. The cumulative impact of changes will continue to be tracked.

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License Amendment No. 209, dated September 20, 2006, provided approval to use EMF-2103(P)(A), Revision 0, at HBRSEP, Unit No. 2. In the March 3, 2005, amendment request, PEC submitted a Realistic LBLOCA analysis using the EMF-2103(P)(A), Revision 0, methodology. That analysis showed a PCT result of 1952°F. Changes and error corrections have been made to that analysis, resulting in a calculated PCT of 1885°F. The applicable changes and error corrections are also provided in Attachment I. These changes have not been previously reported, because the analysis submitted on March 3, 2005, was not being used as the analysis of record.

The latest PCT estimates for the LBLOCA and SBLOCA are included in Attachment II.

If you have any questions concerning this matter, please contact me at (843) 857-1626.

Sincerely,



Curt Castell
Supervisor – Licensing/Regulatory Programs

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Attachments:

- I. Report of Changes/Errors in Loss-of-Coolant Accident Evaluation Models for the Emergency Core Cooling System
- II. Peak Cladding Temperature Estimates

c: L. A. Reyes, NRC, Region II
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H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2

**REPORT OF CHANGES/ERRORS IN LOSS-OF-COOLANT ACCIDENT
 EVALUATION MODELS FOR THE EMERGENCY CORE COOLING SYSTEM**

This report provides an estimate of the effect on peak cladding temperature (PCT) of changes and error corrections in the Loss-of-Coolant Accident (LOCA) evaluation models (EMs) and EM applications for the Emergency Core Cooling System (ECCS) at the H. B. Robinson Steam Electric Plant (HBRSEP), Unit No. 2, covering the period of November 25, 2007, through November 11, 2008.

Large Break Loss-of-Coolant Accident (LBLOCA) Evaluation Model

CHANGED CONDITION	PCT IMPACT (°F)
Change in evaluation methodology to EMF-2103(P)(A), Revision 0, "Realistic Large Break Loss-of-Coolant Accident Methodology for Pressurized Water Reactors," Framatome ANP, April 2003, including changes and error corrections detailed below	-133°F ⁽¹⁾
Cumulative Impact	-133°F

(1) This represents the total change in PCT resulting from the methodology change and subsequent changes and error corrections. The following provides the changes from the Realistic LBLOCA analysis result of a PCT of 1952 °F submitted in the March 3, 2005, license amendment request, which were previously not reported because this model was not being used as the analysis of record:

CHANGED CONDITION	PCT IMPACT (°F)
S-RELAP5 Choking Model Sensitivity	+2°F
ICECON calculation of steam-to-pool condensation	0°F
Legacy Point Kinetics error in S-RELAP5	-50.1°F
Mixture Level error in S-RELAP5	-18.9°F
Cross-flow junction area in RLBLOCA model	0°F
Cold leg condensation underpredicted after accumulator injection	0°F
Cumulative Impact	-67°F

Small Break Loss-of-Coolant Accident (SBLOCA) Evaluation Model

CHANGED CONDITION	PCT IMPACT (°F)
March 3, 2008 – RELAP error in reactor kinetics coding	-8°F
Cumulative Impact	-8°F

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PEAK CLADDING TEMPERATURE ESTIMATES

The current peak cladding temperature (PCT) estimates associated with Loss-of-Coolant Accident (LOCA) Emergency Core Cooling System (ECCS) evaluation models are listed below. These estimates include the cumulative effects of significant and non-significant error corrections and evaluation model changes through November 11, 2008.

<u>Event</u>	<u>PCT (°F)</u>
Large Break LOCA, ECCS Injection Mode	1885
Small Break LOCA, ECCS Injection Mode	1671