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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

ANNUAL 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., is submitting the attached report of non-significant 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. This submittal satisfies the 10 CFR 50.46(a)(3)(ii) requirement for annual reporting of LOCA EM changes for HBRSEP, Unit No. 2.

The last annual report was submitted to the Nuclear Regulatory Commission by letter dated December 2, 2008. A subsequent letter dated April 16, 2009 was submitted to provide notification of a significant change. The April 16, 2009 letter also included the non-significant changes through March 24, 2009. Therefore, this annual report provides the changes covering the period of March 24, 2009 through November 5, 2009. The non-significant changes and error corrections 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.

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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NRR

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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  
T. Orf, NRC Project Manager, NRR  
NRC Resident Inspector, HBRSEP

**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 March 24, 2009 through November 5, 2009.

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

<b>CHANGED CONDITION</b>	<b>PCT IMPACT (°F)</b>
6/9/09 – Two errors were found in the S-RELAP5 computer code by Idaho National Labs. One was in the radiation heat transfer model; the other was in the heat conduction model.	-29
6/9/09 – New data on pellet thermal conductivity as a function of burnup has been incorporated into the RODEX computer code.	0
Cumulative Impact	-29

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

<b>CHANGED CONDITION</b>	<b>PCT IMPACT (°F)</b>
7/10/09 – Two errors were found in the S-RELAP5 computer code by Idaho National Labs. One was in the radiation heat transfer model; the other was in the heat conduction model.	+8
7/10/09 – New data on pellet thermal conductivity as a function of burnup has been incorporated into the RODEX computer code.	0
Cumulative Impact	+8

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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 5, 2009.

<b><u>Event</u></b>	<b><u>PCT (°F)</u></b>
Large Break LOCA, ECCS Injection Mode	1824
Small Break LOCA, ECCS Injection Mode	1615