

Charles R. Pierce  
Regulatory Affairs Director

Southern Nuclear  
Operating Company, Inc.  
40 Inverness Center Parkway  
Post Office Box 1295  
Birmingham, AL 35242

Tel 205.992.7872  
Fax 205.992.7601



April 1, 2016

Docket Nos.: 50-321  
50-366

NL-16-0463

U. S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington, D. C. 20555-0001

Edwin I. Hatch Nuclear Plant Units 1 and 2  
10 CFR 50.46 ECCS Evaluation Model  
Annual Report for 2015 and Significant Change / Error Report

Ladies and Gentlemen:

In accordance with the requirements of 10 CFR 50.46(a)(3)(ii), Southern Nuclear Operating Company (SNC) is submitting the enclosed Edwin I. Hatch Nuclear Plant (HNP) Units 1 & 2 emergency core cooling system (ECCS) evaluation model annual report for 2015. In addition, as a result of the use of GNF2 fuel for the HNP Unit 1 Cycle 28 core load, SNC is submitting for HNP Unit 1 a significant change/error report.

HNP Unit 1 Cycle 28 is the first HNP Unit 1 cycle with a reload of GNF2 fuel. Cycle 28 went critical on March 3, 2016. HNP Unit 2 transitioned to GNF2 fuel last spring. The new fuel introduction required re-analysis of ECCS-LOCA performance evaluation of the limiting large break LOCA and small break LOCA. The GNF2 ECCS-LOCA evaluation incorporates all previous code error notices and provides a new baseline for HNP Unit 1 with GNF2 fuel. The re-analysis resulted in an increase in the calculated peak cladding temperature (PCT) of 180°F for the GNF2 fuel as compared to the previous fuel design (GE14). The analysis also incorporated a methodology change to SAFER/PRIME-LOCA from the previous SAFER/GESTR-LOCA. The analysis meets the NRC Safety Evaluation Report (SER) requirements on the SAFER/PRIME-LOCA application, and demonstrates that the 10 CFR 50.46 PCT and maximum cladding oxidation acceptance criteria are satisfied.

There were no changes or errors to the Unit 1 GE14 ECCS-LOCA evaluation model for 2015. In addition, there were no changes or errors to the Unit 2 ECCS-LOCA evaluation model for 2015 other than those described in the April 8, 2015 Significant Change / Error report (SNC letter NL-15-0680).

This letter contains no NRC commitments. If you have any questions, please contact Ken McElroy at (205) 992-7369.

Respectfully submitted,



C. R. Pierce  
Regulatory Affairs Director

CRP/RMJ

Enclosure: Hatch Nuclear Plant 10 CFR 50.46 ECCS Evaluation Model  
Annual Report for 2015 & Significant Change/Error Report

cc: Southern Nuclear Operating Company  
Mr. S. E. Kuczynski, Chairman, President & CEO  
Mr. D. G. Bost, Executive Vice President & Chief Nuclear Officer  
Mr. D. R. Vineyard, Vice President – Hatch  
Mr. M. D. Meier, Vice President – Regulatory Affairs  
Mr. D. R. Madison, Vice President – Fleet Operations  
Mr. B. J. Adams, Vice President – Engineering  
Mr. G. L. Johnson, Regulatory Affairs Manager - Hatch  
RTYPE: CHA02.004

U. S. Nuclear Regulatory Commission  
Ms. C. Haney, Regional Administrator  
Mr. M. D. Orenak, NRR Project Manager – Hatch  
Mr. D. H. Hardage, Senior Resident Inspector – Hatch

**Edwin I. Hatch Nuclear Plant Units 1 and 2  
10 CFR 50.46 ECCS Evaluation Model  
Annual Report for 2015 and Significant Change/Error Report**

**Enclosure**

**Hatch Nuclear Plant 10 CFR 50.46 ECCS Evaluation Model  
Annual Report for 2015 & Significant Change/Error Report**

**Edwin I. Hatch Nuclear Plant Unit 1**

<b>Table 1-1a – SAFER/GESTR-LOCA Summary of Changes / Errors (2015) (GE14)</b>	
<b>Description</b>	<b>Estimated Effect (<math>\Delta</math> PCT)</b>
None affecting PCT	N/A

<b>Table 1-1b – SAFER/PRIME-LOCA Summary of Changes / Errors (2015) (GNF2)</b>	
<b>Description</b>	<b>Estimated Effect (<math>\Delta</math> PCT)</b>
N/A (Not used in 2015)	N/A

<b>Table 1-1c – Current Changes / Errors</b>		
<b>Description</b>	<b>GE14 Estimated Effect (<math>\Delta</math> PCT)</b>	<b>GNF2 Estimated Effect (<math>\Delta</math> PCT)</b>
None affecting PCT <sup>1</sup>	0	0 <sup>2</sup>

<b>Table 1-1d – Cumulative Impact of Changes /Errors</b>		
<b>Description</b>	<b>GE14 <math>\Delta PCT </math> (°F)</b>	<b>GNF2 <math>\Delta PCT </math> (°F)</b>
• Changes/Errors Previously Reported (Reference 1)	0	N/A
• Current Changes / Errors	0	0 <sup>2</sup>
• Summary of Changes/Errors (2015)	0	N/A
<b>Cumulative Total</b>	<b>0</b>	<b>0</b>

<sup>1</sup> The GNF2 fuel has a licensing basis PCT that is 250°F greater than the GE14 licensing basis PCT, or 180°F greater than the GE14 error-corrected PCT. All

Enclosure to NL-16-0463  
Hatch Nuclear Plant 10 CFR 50.46 ECCS Evaluation Model  
Annual Report for 2015 & Significant Change/Error Report

previous code error notices have been included in the new GNF2 licensing basis PCT, while code error notices from 2011 – 2015 are not included in the GE14 licensing basis PCT. This explains why the difference in licensing basis PCT between GE14 and GNF2 is 70°F greater than the error-corrected PCT difference.

- <sup>2</sup> There have been no changes to the GNF2 “baseline” PCT for the common Unit 1 and Unit 2 analysis.

**Edwin I. Hatch Nuclear Plant Unit 2**

<b>Table 1-2a – SAFER/GESTR-LOCA Summary of Changes / Errors (2015) (GE14)</b>	
<b>Description</b>	<b>Estimated Effect (<math>\Delta</math> PCT)</b>
None affecting PCT	0

<b>Table 1-2b – SAFER/PRIME-LOCA Summary of Changes / Errors (2015) (GNF2)</b>	
<b>Description</b>	<b>Estimated Effect (<math>\Delta</math> PCT)</b>
None affecting PCT <sup>1</sup>	0

<b>Table 1-2c – Current Changes / Errors</b>		
<b>Description</b>	<b>GE14 Estimated Effect (<math>\Delta</math> PCT)</b>	<b>GNF2 Estimated Effect (<math>\Delta</math> PCT)</b>
None affecting PCT	0	0

<b>Table 1-2d – Cumulative Impact of Changes /Errors</b>		
<b>Description</b>	<b>GE14 <math>\Delta PCT </math> (°F)</b>	<b>GNF2 <math>\Delta PCT </math> (°F)</b>
• Changes/Errors Previously Reported (Reference 1)	0	0
• Current Changes / Errors	0	0
• Summary of Changes/Errors (2015)	0	0
<b>Cumulative Total</b>	0	0

Enclosure to NL-16-0463  
Hatch Nuclear Plant 10 CFR 50.46 ECCS Evaluation Model  
Annual Report for 2015 & Significant Change/Error Report

<sup>1</sup> On April 8, 2015, a Significant Change / Error report was submitted (Reference 1). This "reset" the baseline PCT for reporting purposes. There were no additional changes / errors in 2015 other than those reported in Reference 1.

Reference:

1. Letter from C. R. Pierce to USNRC (NL-15-0680), "Edwin I. Hatch Nuclear Plant Units 1 and 2 10 CFR 50.46 ECCS Evaluation Model Annual Report for 2014 and Significant Change/Error Report," dated April 8, 2015