



Leo A. Martin  
Vice President (acting)  
Nuclear Engineering

526 S. Church Street  
Charlotte, NC 28202

Mailing Address:  
EC07C / P.O. Box 1006  
Charlotte, NC 28201-1006

980-373-9364  
704-382-4541 fax

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10 CFR 50.46

U. S. Nuclear Regulatory Commission  
Attn: Document Control Desk  
Washington, DC 20555-0001

Oconee Nuclear Station, Units 1, 2, and 3  
Docket Numbers 50-269, 50-270, and 50-287  
Renewed Operating License Nos. DPR-38, DPR-47, and DPR-55

Subject: Duke Energy Carolinas, LLC (Duke Energy): 10 CFR 50.46 - Annual Report for  
2014 for Oconee Nuclear Station, Units 1, 2, and 3

10 CFR 50.46 (a)(3)(ii) requires the reporting of changes to or errors in Emergency Core Cooling System (ECCS) evaluation models (EMs). This report covers the time period from January 1, 2014 to December 31, 2014 for the Oconee Nuclear Station (ONS). Attached are the Loss of Coolant Accident (LOCA) Peak Cladding Temperature (PCT) margin summary tables for Oconee Units 1, 2, and 3. There are no new regulatory commitments contained in this letter.

Please address any comments or questions regarding this matter to Michael K. Leisure at (980) 373-3619 (Mike.Leisure@duke-energy.com).

Sincerely,

A handwritten signature in blue ink that reads "Leo A. Martin".

Leo A. Martin  
Vice President (acting)  
Nuclear Engineering

Attachment: 2014 Annual Report of Peak Cladding Temperature

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xc (with attachment):

V. M. McCree  
Regional Administrator  
U.S. Nuclear Regulatory Commission - Region II  
Marquis One Tower  
245 Peachtree Center Ave., NE Suite 1200  
Atlanta, GA 30303-1257

J. R. Hall  
NRC Project Manager (ONS)  
U.S. Nuclear Regulatory Commission  
One White Flint North, Mail Stop 8G9A  
11555 Rockville Pike  
Rockville, MD 20852-2738

Eddy Crowe  
NRC Senior Resident Inspector  
Oconee Nuclear Station

**Attachment**

**Duke Energy Carolinas, LLC**

**Oconee Nuclear Station, Units 1, 2, and 3**

**10 CFR 50.46**

**Acceptance Criteria for Emergency Core  
Cooling Systems for Light-Water Nuclear Power Reactors**

**2014 Annual Report of Peak Cladding Temperature**

**Table 1: LOCA Peak Cladding Temperature Margin Summary – Oconee Units 1, 2, and 3**

**Table 1**  
**LOCA Peak Cladding Temperature Margin Summary – Oconee Units 1, 2, and 3**

<b>LBLOCA</b>	<b>PCT(°F)</b>	<b>Comments</b>
Evaluation model: RELAP5/MOD2-B&W		
Analysis of record PCT	1852	References A, B 2.506-ft MOL case
Prior 10 CFR 50.46 Changes or Error Corrections ( $\Delta$ PCT)		References A, B
1. Transient fuel pellet thermal conductivity degradation (considered a change in the application of the evaluation model)	+2	
2. PCT increase due to higher initial fuel average temperatures when fuel pellet thermal conductivity degradation is considered.	+428	Reference D
3. PCT decrease due to MOL linear heat rate penalty of 2 kW/ft at all core elevations.	-428	Reference D
Current 10 CFR 50.46 Changes or Error Corrections ( $\Delta$ PCT)		
1. None		
Final licensing basis PCT	1854	
<b>SBLOCA Full Power -100% FP</b>	<b>PCT(°F)</b>	<b>Comments</b>
Evaluation model: RELAP5/MOD2-B&W		
Analysis of record PCT	1598	References A, B (2 HPI Case) 0.15 ft <sup>2</sup> break
Prior 10 CFR 50.46 Changes or Error Corrections ( $\Delta$ PCT)		Reference D
1. Updated uncertainty to account for TCD in TACO3/GDTACO	0	
Current 10 CFR 50.46 Changes or Error Corrections ( $\Delta$ PCT)		
1. None		
Final licensing basis PCT	1598	
<b>SBLOCA Reduced Power [1]</b>	<b>PCT(°F)</b>	<b>Comments</b>
Analysis of record PCT	N/A	Reported under a separate LAR (Reference C)
Prior 10 CFR 50.46 Changes or Error Corrections ( $\Delta$ PCT)	N/A	
Current 10 CFR 50.46 Changes or Error Corrections ( $\Delta$ PCT)	N/A	
Final licensing basis PCT	N/A	Operation Not Justified [2]

**Notes**

1. Partial power SBLOCA analysis with one HPI pump out of service, supports 30 day LCO for TS 3.5.2 Condition B. Also supports TS 3.5.2 Condition C1 and C2.
2. Pending review and approval of separate LAR. Refer to Reference C for additional details.

References for Table 1:

- A) Letter, G. D. Miller (Duke Energy) to USNRC, *30-Day Report Pursuant to 10 CFR 50.46, Changes to or Errors in an Evaluation Model*, December 16, 2013 (ML13353A137)
- B) Letter, B. C. Waldrep (Duke Energy) to USNRC, *10 CFR 50.46 – Annual Report for 2013 for Oconee Nuclear Station, Units 1, 2, and 3*, July 7, 2014 (ML14205A280)
- C) Letter, S. L. Batson (Duke Energy) to USNRC, *License Amendment Request (LAR) to Reduce Allowed Maximum Rated Thermal Power When High Pressure Injection (HPI) Equipment is Inoperable – License Amendment Request No. 2013-03*, June 30, 2014 (ML14184B384)
- D) Letter RA-14-0032, E. J. Kapopoulos Jr. (Duke Energy) to USNRC, *10 CFR 50.46 30-Day Report for Oconee Nuclear Station, Units 1, 2, and 3; Estimated Impacts to Peak Cladding Temperature due to Fuel Pellet Thermal Conductivity Degradation*, December 17, 2014 (ML14353A214).