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10 CFR 50.4
10 CFR 50.46

July 11, 2013

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

Oconee Nuclear Station, Unit 1, 2 and 3
Docket Numbers 50-269, 50-270, and 50-287/Renewed License Numbers DPR-38, DPR-47, and DPR-55

Subject: Duke Energy Carolinas, LLC (Duke Energy): Report Pursuant to 10 CFR 50.46, Changes to or Errors in an Evaluation Model

Reference:

1) Letter, D. C. Culp (Duke Energy) to USNRC, Subject: Oconee Nuclear Station - 30-Day Report Pursuant to 10 CFR 50.46, Changes to or Errors in an Evaluation Model, March 9, 2012. [ADAMS Accession No. ML12073A354]
2) Letter, G. D. Miller (Duke Energy) to USNRC, Subject: Oconee Nuclear Station – Response to NRC RAI regarding 10 CFR 50.46 Notification of Change in Peak Cladding Temperature for Large Break Loss of Coolant Accident Analysis, December 7, 2012. [ADAMS Accession No. ML12348A055]
3) Letter, G. D. Miller (Duke Energy) to USNRC, Subject: Oconee Nuclear Station – Response to NRC RAI regarding 10 CFR 50.46 Notification of Change in Peak Cladding Temperature for Large Break Loss of Coolant Accident Analysis, April 4, 2013. [ADAMS Accession No. ML13102A033]

10 CFR 50.46 (a)(3)(ii) requires the reporting of changes to or errors in Emergency Core Cooling (ECCS) evaluation models (EMs). This report covers the time period from January 1, 2012 to December 31, 2012 for the Oconee Nuclear Station (ONS).

On February 23, 2012, AREVA notified Duke Energy of two offsetting errors in the ONS ECCS evaluation model. The ECCS bypass calculation model contained the first error, which when corrected, shortened the lower plenum refill time and thus decreased the peak cladding

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temperature (PCT) in both the ruptured and unruptured segments. An 80°F decrease in the ruptured segment PCT and a 40°F decrease in the unruptured segment PCT were assigned to the correction of this error. This error was only applicable to the Large-Break Loss of Coolant Accident (LBLOCA) model. The second error involved enhanced modeling of the upper plenum column weldment over the hot channel which reduced cooling during portions of the blowdown phase and resulted in increases in the ruptured and unruptured segment PCTs. An 80°F increase in the ruptured segment PCT and a 40°F increase in the unruptured segment PCT following a LBLOCA were conservatively assigned to the correction of this error. When correcting for both errors, the net result for a LBLOCA is a 0°F change in both segments. The impact of the second error on the Small-Break LOCA results was estimated to be 0°F. These errors were reported to the NRC in Reference 1. The NRC has issued requests for additional information related to the errors described above. Duke Energy and AREVA have provided responses to these requests in References 2 and 3.

There were no other errors in, or changes to, the ONS LOCA analyses during this reporting period. Included in this report are LOCA PCT summary tables for Oconee Units 1, 2, and 3.

There are no regulatory commitments contained in this letter.

Please address any comments or questions regarding this matter to Paul Guill at (704) 382-4753 *(paul.guill@duke-energy.com)*.

Sincerely,

Michael J. Annacone,
Vice President - Organizational Effectiveness &
Regulatory Affairs

Attachment

Table 1: Mk-B-HTP Full Core Peak Cladding Temperature Summary – Oconee Units 1, 2, and 3

xc (with attachment):

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ATTACHMENT

Table 1: Mk-B-HTP Full Core Peak Cladding Temperature Summary Oconee Units 1, 2, and 3

References for Table 1

A) Letter, R. M. Glover (Duke Energy) to USNRC, "30-Day Report Pursuant to 10 CFR 50.46, Changes to or Errors in an Evaluation Model", December 8, 2011. [ADAMS ML11347A193]

B) Letter, B. C. Waldrep (Duke Energy) to USNRC, "Report Pursuant to 10 CFR 50.46, Changes to or Errors in an Evaluation Model", July 5, 2012. [ADAMS ML121910319]

C) Letter, B. C. Waldrep (Duke Energy) to USNRC, "30-Day Report Pursuant to 10 CFR 50.46, Changes to or Errors in an Evaluation Model", December 20, 2012.

D) Letter, G. J. St.Clair (AREVA) to S. B. Thomas (Duke Energy), "10 CFR 50.46 LOCA Report of Two EM Error Corrections (AREVA CR 20120165: ECCS Bypass Mathematical Error and AREVA CR 2012-757: Upper Plenum Column Weldment EM Change)", Dated February 23, 2012, AREVA Letter FAB12-120.

E) Letter, D. C. Culp (Duke Energy) to USNRC, "30-Day Report Pursuant to 10 CFR 50.46, Changes to or Errors in an Evaluation Model", March 9, 2012. [ADAMS ML12073A354]

F) Letter, G. D. Miller (Duke Energy) to USNRC, Subject: Oconee Nuclear Station – Response to NRC RAI regarding 10 CFR 50.46 Notification of Change in Peak Cladding Temperature for Large Break Loss of Coolant Accident Analysis, December 7, 2012. [ADAMS ML12348A055]

G) Letter, G. D. Miller (Duke Energy) to USNRC, Subject: Oconee Nuclear Station – Response to NRC RAI regarding 10 CFR 50.46 Notification of Change in Peak Cladding Temperature for Large Break Loss of Coolant Accident Analysis, April 4, 2013. [ADAMS ML13102A033]

Table 1: Mk-B-HTP Full Core Peak Cladding Temperature Summary – Oconee Units 1, 2 & 3

LBLOCA	PCT(°F)	Comments
Evaluation model: RELAP5/MOD2-B&W		
Analysis of record PCT	1913	References A, B, C
Prior errors (ΔPCT) 1. None	0	
Prior evaluation model changes (ΔPCT) 1. None	0	
Errors (ΔPCT) 1. Error in ECCS Bypass Calculation	-80	References D, E, F, G
Evaluation model changes (ΔPCT) 1. Upper Plenum Column Weldment Modeling	+80	References D, E, F, G
Absolute value of errors/changes for this report (ΔPCT)	0	
Net change in PCT for this report	0	
Final PCT	1913	
SBLOCA Full Power -100% FP	**PCT(°F)**	**Comments**
Evaluation model: RELAP5/MOD2-B&W		
Analysis of record PCT	1598	References A, B, C (2 HPI Case) 0.15 ft^2 break
Prior errors (ΔPCT) 1. None	0	
Prior evaluation model changes (ΔPCT) 1. None	0	
Errors (ΔPCT) 1. None	0	
Evaluation model changes (ΔPCT) 1. Upper Plenum Column Weldment Modeling	0	References D, E, F, G
Absolute value of errors/changes for this report (ΔPCT)	0	
Net change in PCT for this report	0	
Final PCT	1598	
SBLOCA Reduced Power – 50% FP [1]	**PCT(°F)**	**Comments**
Analysis of record PCT	N/A	Will be reported under a separate LAR (References A, B, C)
Prior errors (ΔPCT)	N/A	
Prior evaluation model changes (ΔPCT)	N/A	
Errors (ΔPCT)	N/A	
Evaluation model changes (ΔPCT) 1. Upper Plenum Column Weldment Modeling	0	References D, E, F, G
Absolute value of errors/changes for this report (ΔPCT)	N/A	
Net change in PCT for this report	N/A	
Final 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 A for additional details.