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0CAN061801

June 5, 2018

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

**SUBJECT:** Annual 10 CFR 50.46 Report for Calendar Year 2017  
Emergency Core Cooling System Evaluation Changes  
Arkansas Nuclear One – Units 1 and 2  
Docket Nos. 50-313 and 50-368  
License Nos. DPR-51 and NPF-6

**REFERENCE** Entergy submittal to the NRC, "Annual 10 CFR 50.46 Report for Calendar Year 2016 Emergency Core Cooling System Evaluation Changes," dated July 26, 2017 (0CAN071701) (ML17207A163)

Dear Sir or Madam:

10 CFR 50.46(a)(3)(ii) requires licensees to report annually each change to or error discovered in an acceptable evaluation model or in the application of such model for the emergency core cooling system that affects the peak cladding temperature (PCT). Entergy Operations, Inc. has reviewed the small-break and large-break loss-of-coolant accident (LOCA) PCT evaluations for both Arkansas Nuclear One, Units 1 and 2 (ANO-1 and ANO-2).

No issues were identified for ANO-1 or ANO-2 in 2017 that impacted the results reported for the calendar year 2016, referenced above.

A summary / overview of the information required to be submitted each year is attached to this submittal.

This submittal fulfills the reporting requirements referenced above.

This letter contains no new regulatory commitments.

If you have any questions or require additional information, please contact me.

Sincerely,

**ORIGINAL SIGNED BY STEPHENIE L. PYLE**

SLP/rwc

Attachment: Summary / Overview of Information for Arkansas Nuclear One, Units 1 and 2  
10 CFR 50.46 Annual Report for 2017

cc: Mr. Kriss Kennedy  
Regional Administrator  
U. S. Nuclear Regulatory Commission, Region IV  
1600 East Lamar Boulevard  
Arlington, TX 76011-4511

NRC Senior Resident Inspector  
Arkansas Nuclear One  
P.O. Box 310  
London, AR 72847

U. S. Nuclear Regulatory Commission  
Attn: Mr. Thomas Wengert  
MS O-08B1A  
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Rockville, MD 20852

**ATTACHMENT TO**

**0CAN061801**

**Summary / Overview of Information for  
Arkansas Nuclear One, Units 1 and 2  
10 CFR 50.46 Annual Report for 2017**

**Summary / Overview of Information for Arkansas Nuclear One, Units 1 and 2 10 CFR 50.46 Annual Report for 2017**

	Analysis of Record (AOR) Peak Clad Temperature (PCT), (°F) Evaluation Model (EM) Used AOR Date	Adjustment as of End-of-Year (EOY 2016), (°F)	Net PCT at the EOY 2016, (°F)	New Adjustments for Calendar Year 2017, (°F)	Net PCT at the EOY 2017, (°F)
<b>ANO-1</b>					
<b>Small-Break Loss-of-Coolant Accident (SBLOCA)</b>	1459 RELAP5 / MOD2-B&W February 2011	None	1459 (estimated)	None (Note 1)	1459 (estimated)
<b>Large-Break Loss-of-Coolant Accident (LBLOCA)</b>	2008.1 RELAP5 / MOD2-B&W July 2005	None	2008.1 (estimated)	None (Notes 1,2)	2008.1 (estimated)
<b>ANO-2</b>					
<b>SBLOCA</b>	2111 S2M October 2007	None	2111 (analyzed)	None	2111 (analyzed)
<b>LBLOCA</b>	2144 1999 EM January 2008	None	2144 (analyzed)	None	2144 (analyzed)

Notes:

1. Framatome (previously AREVA) explicitly updated both SBLOCA and LBLOCA analyses to account for LOCA Swelling and Rupture. There is no estimated net change to PCT for either analysis.<sup>(1)</sup>
2. Framatome has previously reported that LBLOCA analyses performed with the previously approved EM<sup>(2)</sup> did not adequately account for the effects of thermal conductivity degradation (TCD) on volume average fuel temperatures at later times in life. While short term compensatory measures were put into place to offset the effects of TCD<sup>(3)</sup>, a supplement to the existing EM analyses was developed and submitted to the NRC which contained the methodology developed by Framatome to perform LBLOCA analyses accounting for TCD. This methodology was contained in the supplement approved by the NRC in 2017<sup>(4)</sup>. This approval alone does not represent a direct change to the analysis of record (AOR) PCT; however, this does represent a change to the approved LOCA methodology and may result in a change in the PCT once new AOR LBLOCA analyses are performed using the new methodology.

References:

1. Framatome Document FS1-0033526-1.0, "AREVA Condition Report 2017-3565, M5® LOCA Swelling and Rupture Model (SRM) Update."
2. Framatome Topical Report BAW-10192PA-00, "BWNT LOCA – BWNT Loss-of-Coolant Accident Evaluation Model for Once-Through Steam Generator Plants."
3. Letter T1.2FAB-FAB15-00217-000, "Arkansas Nuclear One Unit 1 – 2014 10CFR50.46 Annual Report – Emergency Core Cooling System (ECCS) Evaluation Model Changes," Dated March 23, 2015.
4. Framatome Topical Report BAW-10192PA-00\_Supplement\_1PA-000 "BWNT LOCA – BWNT Loss-of-Coolant Accident Evaluation Model for Once-Through Steam Generator Plants."