



**Entergy Nuclear Northeast
Entergy Nuclear Operations, Inc.**

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William C. Drews
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JAFP-16-0121
August 1, 2016

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

Subject: 10 CFR 50.46 Annual Report – Changes and Errors in Emergency Core Cooling System Evaluation Models

James A FitzPatrick Nuclear Power Plant
Docket No. 50-333
License No. DPR-059

Reference: Entergy letter, 10 CFR 50.46 Annual Report – Changes and Errors in Emergency Core Cooling System Evaluation Models, JAFP-15-0092, dated August 3, 2015

Dear Sir or Madam:

The attached report summarizes changes and errors in emergency core cooling system (ECCS) evaluation models in accordance with 10 CFR 50.46(a)(3)(ii) for the period August 1, 2015 to July 31, 2016 for Entergy's James A. FitzPatrick Nuclear Power Plant (JAF).

This letter contains no new regulatory commitments. Should you have any questions, please contact me at (315) 349-6562.

Sincerely,

A handwritten signature in black ink, appearing to read "W C Drews".

William C. Drews
Regulatory Assurance Manager

WCD/mh

Attachment: 10 CFR 50.46(a)(3)(ii) Annual Report on Changes and Errors in Emergency Core Cooling System (ECCS) Evaluation Models for the period from August 1, 2015 to July 31, 2016

cc: NRC Region I Administrator
NRC Resident Inspector
NRC Project Manager

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Attachment

10 CFR 50.46(a)(3)(ii) Annual Report on Changes and Errors in Emergency Core Cooling System (ECCS) Evaluation Models for the period from August 1, 2015 to July 31, 2016

(3 Pages)

10 CFR 50.46(a)(3)(ii) Annual Report on Changes and Errors in Emergency Core Cooling System (ECCS) Evaluation Models for the period from August 1, 2015 to July 31, 2016

INTRODUCTION

This report summarizes changes and errors in emergency core cooling system (ECCS) evaluation models in accordance with 10 CFR 50.46(a)(3)(ii) for the period August 1, 2015 to July 31, 2016 for Entergy's James A. FitzPatrick Nuclear Power Plant. There are no new changes or errors reported during this period.

FitzPatrick has been operating with the same models and analysis as reported in the last update, see Reference 7. The JAF core is comprised of GNF2 fuel. The base licensing basis Peak Cladding Temperature (PCT) is 1800°F as reported in Reference 2. The PCT adjusted for changes and errors is 1900°F as shown in Table 1, which remains below the 2200°F acceptance criterion of 10 CFR 50.46.

10 CFR 50.46(a)(3)(ii) Annual Report on Changes and Errors in Emergency Core Cooling System (ECCS) Evaluation Models for the period from August 1, 2015 to July 31, 2016

TABLE 1 - ACCOUNTING OF LICENSING BASIS
PEAK CLAD TEMPERATURES FOR FITZPATRICK

Report Period	Notification Nature of PCT Change in ECCS Evaluation	GNF2 Fuel ⁽¹⁾	
		Estimated PCT Impact	Licensing Basis PCT
Prior Reporting Periods (Ref. 3, 4, 5, 6 & 7)	Cycle 19 Core Load Using GNF2 Type Fuel (Ref. 1, 2)	n/a	1800°F
	2011-02 , Impact of Database Error for Heat Deposition on the Peak Cladding Temperature (PCT) for 10x10 Fuel Bundles (Ref. 8)	45°F	1845°F
	2011-03 , Impact of Updated Formulation for Gamma Heat Deposition to Channel Wall for 9x9 and 10x10 Fuel Bundles (Ref. 9)	5°F	1850°F
	2012-01 , Change in an acceptable evaluation model or application of such model due to PRIME Fuel Properties Implementation for Fuel Rod T/M Performance, replacing GESTR Fuel Properties (Ref. 10)	40°F	1890°F
	2014-01 , Maintenance Update Changes (Ref. 11)	0°F	1890°F
	2014-02 , Mass Non-conservatism (Ref. 11)	10°F	1900°F
	2014-03 , Minimum Core Differential Pressure Model (Ref. 11)	20°F	1920°F
	2014-04, Rev. 1 , Bundle/Lower Plenum Counter Current Flow Limited Head (Ref. 12)	-20°F	1900°F
Cumulative Licensing Basis PCT as of previous reporting period		1900°F	
August 1, 2015 – July 31, 2016	No changes or errors	n/a	1900°F
Cumulative sum of absolute magnitude of changes and errors in this reporting period		0°F	

NOTE: (1) GNF2 fuel was first installed during Refueling Outage 18, October 2008

10 CFR 50.46(a)(3)(ii) Annual Report on Changes and Errors in Emergency Core Cooling System (ECCS) Evaluation Models for the period from August 1, 2015 to July 31, 2016

REFERENCES

1. General Electric Nuclear Energy, "James A. FitzPatrick Nuclear Power Plant SAFER/GESTR-LOCA Loss-of-Coolant Accident Analysis," NEDC-31317P, Class III (Proprietary), Revision 2, April 1993
2. GE Report, "James A. FitzPatrick Nuclear Power Plant GNF2 ECCS-LOCA Evaluation," 0000-0076-4111-R0, August 2008 (Proprietary) (Internal Report JAF-RPT-08-00014 R0)
3. Entergy Nuclear Operations, Inc. Letter to USNRC, JAFP-11-0097, dated August 1, 2011, "10 CFR 50.46 Annual Report – Changes and Errors in Emergency Core Cooling System Evaluation Models"
4. Entergy Nuclear Operations, Inc. Letter to USNRC, JAFP-12-0089, dated August 1, 2012, "10 CFR 50.46 Annual Report – Changes and Errors in Emergency Core Cooling System Evaluation Models"
5. Entergy Nuclear Operations, Inc. Letter to USNRC, JAFP-13-0096, dated August 1, 2013, "10 CFR 50.46 Annual Report – Changes and Errors in Emergency Core Cooling System Evaluation Models"
6. Entergy Nuclear Operations, Inc. Letter to USNRC, JAFP-14-0094, dated August 1, 2014, "10 CFR 50.46 Annual Report – Changes and Errors in Emergency Core Cooling System Evaluation Models"
7. Entergy Nuclear Operations, Inc. Letter to USNRC, JAFP-15-0092, dated August 3, 2015, "10 CFR 50.46 Annual Report – Changes and Errors in Emergency Core Cooling System Evaluation Models"
8. General Electric 10 CFR 50.46 Notification Letter 2011-02, dated July 20, 2011 regarding "Impact of Database Error for Heat Deposition on the Peak Cladding Temperature (PCT) for 10x10 Fuel Bundles" (Proprietary)
9. General Electric 10 CFR 50.46 Notification Letter 2011-03, dated July 20, 2011 regarding "Impact of Updated Formulation for Gamma Heat Deposition to Channel Wall for 9x9 and 10x10 Fuel Bundles" (Proprietary)
10. General Electric 10 CFR 50.46 Notification Letter 2012-01, dated November 29, 2012 regarding "PRIME Fuel Properties Implementation for Fuel Rod T/M Performance, replacing GESTR Fuel Properties" (Proprietary) (Letter LRW-ENO-GEN-12-131)
11. Entergy Nuclear Operations, Inc. Memorandum to File, CEXI-2014-00002, dated May 23, 2014 regarding "Entergy Plant 10 CFR 50.46 Notification Letters 2014-01, 2014-02, 2014-03, and 2014-04"
12. General Electric Hitachi 10 CFR 50.46 Notification Letter 2014-04, Rev. 1, dated December 5, 2014 regarding "SAFER04A E4-Bundle/Lower Plenum CCFL Head" (Proprietary)