



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

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Chris M. Adner
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JAFP-15-0092
August 3, 2015

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-14-0094, dated August 1, 2014

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, 2014 to July 31, 2015 for Entergy's James A. FitzPatrick Nuclear Power Plant (JAF).

This letter contains no new commitments. Should you have any questions, please contact me at (315) 349-6766.

Sincerely,

Chris M. Adner
Regulatory Assurance Manager

CMA/mh
cc: next page

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, 2014 to July 31, 2015

cc: NRC Regional Administrator, Region I
NRC Resident Inspector
Senior Project Manager

JAFP-15-0092

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, 2014 to July 31, 2015

(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, 2014 to July 31, 2015

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, 2014 to July 31, 2015 for Entergy's James A. FitzPatrick Nuclear Power Plant.

Since the last reporting update (Reference 4), FitzPatrick has been subject to one notification of changes and errors in the Evaluation Model used for ECCS-LOCA calculation (Reference 9). Notification Letter 2014-04, Rev. 1 reported an Evaluation Model error related to bundle and reactor vessel lower plenum counter current flow limited (CCFL) head that results in a small (non-significant) change in PCT. Revision 1 replaces the change previously reported Notification Letter 2014-04, Rev. 0.

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, 2014 to July 31, 2015

**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. 1, 2, 3, & 4)	Cycle 19 Core Load Using GNF2 Type Fuel (Ref. 10, 11)	n/a	1800°F
	2011-02 , Impact of Database Error for Heat Deposition on the Peak Cladding Temperature (PCT) for 10x10 Fuel Bundles (Ref. 5)	45°F	1845°F
	2011-03 , Impact of Updated Formulation for Gamma Heat Deposition to Channel Wall for 9x9 and 10x10 Fuel Bundles (Ref. 6)	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. 7)	40°F	1890°F
	2014-01 , Maintenance Update Changes (Ref. 8)	0°F	1890°F
	2014-02 , Mass Non-conservatism (Ref. 8)	10°F	1900°F
	2014-03 , Minimum Core Differential Pressure Model (Ref. 8)	20°F	1920°F
	2014-04 , Bundle/Lower Plenum Counter Current Flow Limited Head (Ref. 8)	5°F	1925°F
Cumulative Licensing Basis PCT as of previous reporting period		1925°F	
August 1, 2014 – July 31, 2015	(Remove) 2014-04 , Rev 0	-5°F	1920°F
	2014-04, Rev. 1 , Bundle/Lower Plenum Counter Current Flow Limited Head (Ref. 9)	-20°F	1900°F
Cumulative sum of absolute magnitude of changes and errors in this reporting period		Δ 25°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, 2014 to July 31, 2015

REFERENCES

1. 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"
2. 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"
3. 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"
4. 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"
5. 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)
6. 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)
7. 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)
8. 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"
9. General Electric Hitachi 10 CFR 50.46 Notification Letter 2014-04, Rev. 1, dated December 5, 2014 (Proprietary)
10. 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
11. 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)