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W3F1-2015-0075

September 8, 2015

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

SUBJECT: Update to Responses to Request for Additional Information Regarding Adoption of National Fire Protection Association Standard NFPA 805 License Amendment Request (LAR)
Waterford Steam Electric Station, Unit 3 (Waterford 3)
Docket No. 50-382
License No. NPF-38

REFERENCES:

1. Entergy letter W3F1-2011-0074 "License Amendment Request to Adopt NFPA 805 Performance-Based Standard for Fire Protection for Light Water Reactor Generating Plants (2001 Edition)", Waterford Steam Electric Station, Unit 3 dated November 17, 2011 [ML113220230]
2. Entergy letter W3F1-2012-0005 "Supplemental Information in Support of the NRC Acceptance Review of Waterford 3 License Amendment Request to Adopt NFPA 805, Waterford Steam Electric Station, Unit 3" dated January 26, 2012 [ML12027A049]
3. Entergy letter W3F1-2012-0064 "Response to Request for Additional Information Regarding Adoption of National Fire Protection Association Standard NFPA 805 License Amendment Request, Waterford Steam Electric Station, Unit 3" dated September 27, 2012 [ML12272A099]
4. Entergy letter W3F1-2012-0083 "90 Day Response to Request for Additional Information Regarding Adoption of National Fire Protection Association Standard NFPA 805 License Amendment Request, Waterford Steam Electric Station, Unit 3" dated October 16, 2012 [ML12290A216]
5. Entergy letter W3F1-2013-0022 "Response to 2nd Round Request for Additional Information Regarding Adoption of National Fire Protection Association Standard NFPA 805 License Amendment Request, Waterford Steam Electric Station, Unit 3" dated May 16, 2013 [ML13137A128]

6. Entergy letter W3F1-2013-0048 “Supplement to NFPA 805 License Amendment Request (LAR) Waterford Steam Electric Station, Unit 3” dated December 18, 2013 [ML13365A325]

7. Entergy letter W3F1-2014-0025, “Updated Responses to Request for Additional Information Regarding Adoption of National Fire Protection Association Standard NFPA 805 License Amendment Request (LAR) Waterford Steam Electric Station, Unit 3” dated June 11, 2014 [ML14162A504]

8. Entergy letter W3F1-2015-0015 “Responses to Request for Additional Information Regarding Adoption of National Fire Protection Association Standard NFPA 805 License Amendment Request (LAR) Waterford Steam Electric Station, Unit 3” dated March 12, 2015 [ML not assigned]

9. Entergy letter W3F1-2015-0024 “Responses to Request for Additional Information Regarding Adoption of National Fire Protection Association Standard NFPA 805 License Amendment Request (LAR) Waterford Steam Electric Station, Unit 3” dated April 10, 2015 [ML not assigned]

10. Entergy letter W3F1-2015-0025 “Responses to Request for Additional Information Regarding Adoption of National Fire Protection Association Standard NFPA 805 License Amendment Request (LAR) Waterford Steam Electric Station, Unit 3” dated May 14, 2015 [ML not assigned]

11. Entergy letter W3F1-2015-0057 “Responses to Request for Additional Information Regarding Adoption of National Fire Protection Association Standard NFPA 805 License Amendment Request (LAR) Waterford Steam Electric Station, Unit 3” dated August 27, 2015 [ML not assigned]

Dear Sir or Madam:

By letter dated November 17, 2011, as supplemented by letters dated January 26, 2012, September 27, 2012, October 16, 2012, May 16, 2013, December 18, 2013, June 11, 2014, March 12, 2015, April 10, 2015, May 14, 2015 and August 27, 2015. (References 1 through 11 respectively), Entergy Operations, Inc. (Entergy), submitted a license amendment request (LAR) to transition its fire protection license basis at the Waterford Steam Electric Station, Unit 3, from paragraph 50.48(b) of Title 10 of the *Code of Federal Regulations* (10 CFR) to 10 CFR 50.48(c), "National Fire Protection Association Standard 805" (NFPA 805).

The NRC requested additional information (via FPE RAI 10) on LAR Attachment L Request No. 6 for three sprinkler systems (FPM-3A, FPM-4B and FPM-22) fed from the 4-inch fire protection water main loop in the RAB not being capable of supplying the system demand with the hydraulically least demanding portion of the loop out of service. The response to FPE RAI 10 was contained in the updated RAI responses provided in Reference 7. The Fire Protection hydraulic calculation was recently revised and identified one additional sprinkler system (FPM-24) that needs to be included with the other three sprinkler systems in the approval request list. Attachment 1 contains an updated response to FPE RAI 10.

There are no new regulatory commitments contained in this submittal. If you require additional information, please contact the Regulatory Assurance Manager, John Jarrell at 504-739-6685.

I declare under penalty of perjury that the foregoing is true and correct. Executed on September 8, 2015.

Sincerely,

MRC/AJH

Attachment: Updated FPE RAI 10 Response

cc:

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ATTACHMENT

W3F1-2015-0075

Updated FPE RAI 10 Response

RAI FPE 10

Attachment L, Approval Request 6 -A deviation from NFPA 805 Section 3.5.1 is requested for several plant areas where the fire water supply demand is not met with the least demanding portion of the main loop out of service. Please justify this deviation to include a discussion of the following:

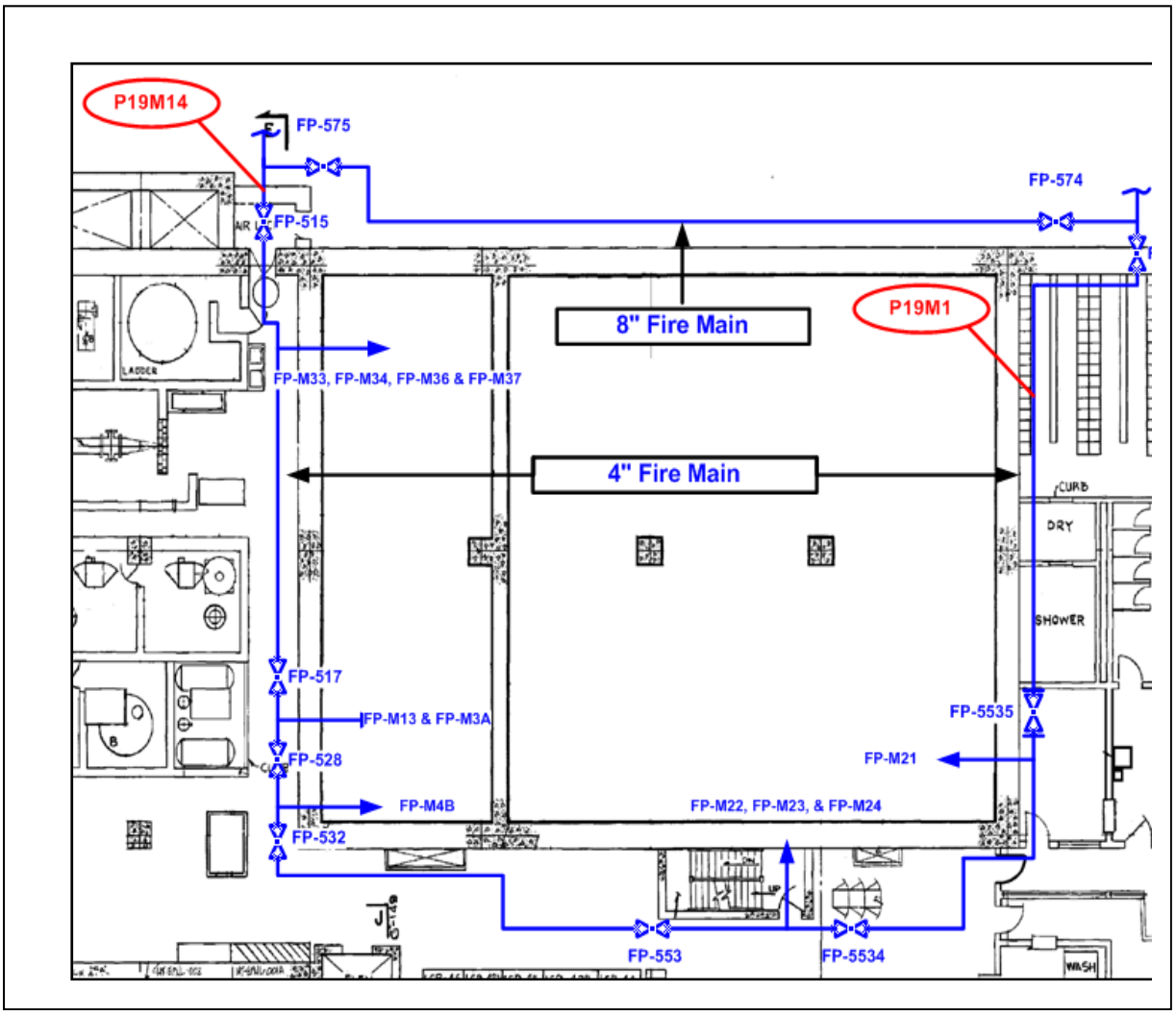
a. *The location of this 4" loop section.*
b. *The procedures in place to mitigate.*
c. *The capacity of the three sprinkler systems given the least demanding portion of the main loop is out of service.*

Waterford 3 Response (Updated)

Additional information as requested above is provided in support of Attachment L, Approval Request 6. Note: Item C above needs to be revised to indicated four sprinkler systems as identified below.

a. ***Location of this 4" loop section***:

An 8 inch diameter fire main is routed through the Reactor Auxiliary Building (RAB) and connects to the outside 10 inch diameter underground fire main loop on both the east and west sides of the RAB. This 8 inch fire main traverses east/west near the south wall of Fire Area RAB 32 (RAB -4' Elevation). The 4 inch fire main loop, addressed in Attachment L Approval Request 6, connects to the above described 8 inch fire main in Fire Area RAB 32 (approximately 3 feet west of column line 10AZ and approximately 2'-8" north of column line L). The 4 inch loop then traverses south into Fire Area RAB 30, then west and north in Fire Area RAB 31 around the Condensate Storage and Refueling Water Pools before re-entering Fire Area RAB 32 (RAB -4'Elevation) over fire door D-161 (along column line L between column lines 5A and 6A). The 4 inch loop then connects back into the 8 inch fire main loop in RAB 32 (approximately 7'-2" west of column line 6A and approximately 11'-6" north of column line L). This 4 inch loop is approximately 300 linear feet of pipe in length and runs in the overhead areas of the -4 foot elevation in the RAB. See Sketch below for general routing of the 8 and 4 inch fire mains discussed above.



SKETCH (Not to Scale)
RAB -4' Elevation

b. ***Procedures in place to mitigate***:

Procedure FP-001-015 "Fire Protection System Impairments", Section 5.2.3 specifically addresses the impact of closing sectional isolation valves on the 4 inch fire main loop described above. This procedure identifies which sprinkler systems are impaired based on which individual fire main sectional isolation valve (FP-515, FP-517, FP-528, FP-532, FP-553, FP-5534, FP-5535, or FP-573) on the 4 inch fire main loop is closed. For each sprinkler system impaired, compensatory measures specified in TRM 3.7.10.2 are implemented during the time the sprinkler system is impaired.

c. ***Capacity of the three sprinkler systems given the least demanding portion of the main loop is out of service: Note: The correct number of sprinkler systems is four not three***.

System design and water demand requirements for Sprinkler Systems FP-M3A, FP-M4B, FP-M22 and FPM-24 are summarized below in Table 1. These water demand requirements include sprinkler demand as well as 500 gpm demand for fire hose.

With the least demanding portion of the 4 inch fire main loop out of service, the four sprinkler systems retain a minimum capacity of approximately 70%. This minimum capacity is expressed as a percentage of the sprinkler system design demand area (shown in Table 1) that can be supplied at the system design density (also shown in Table 1). This percentage of the system design demand area represents the most hydraulically remote portion of the sprinkler system coverage area.

Table 1

Sprinkler System No.	Sprinkler System Design Demand	Sprinkler Demand at Base of Riser
FP-M3A	0.25 gpm/sq.ft. over the entire room area (approximately 2000 sq. ft.)	592 gpm at 45 psi
FP-M4B	0.25 gpm/sq.ft. over the entire room area (approximately 2000 sq. ft.)	676.5 gpm at 70.2 psi
FP-M22	0.16 gpm/sq.ft. over the most remote 1500 sq. ft.	730.7 gpm at 73.3 psi
FP-M24	0.19 gpm/sq. ft over the most remote 1500 sq. ft	Remote Area B (only) 652.4 gpm at 61.6 psi

Summary:

As demonstrated above, the fire water supply system at Waterford 3 is adequate to supply a sizable portion of the system design demand for Sprinkler Systems FP-M3A, FP-M4B, FP-M22, or FP-M24 with the least demanding portion of the 4 inch fire main loop out of service. Sectional isolation valves are provided such that Sprinkler System FP-M3A, FP-M4B, FP-M22, or FP-M24 can be isolated without impairing inside hose station coverage for the area of the impaired sprinkler system. Therefore, inside hose stations are available for fire brigade use during periods when sprinkler system is being partially or completely impaired. Procedural controls in Fire Protection System Impairments Procedure FP-001-015 ensure TRM required compensatory measures for inoperable suppression system are in place when the least demanding portion of the 4 inch fire main loop is out of service.

The above described features ensure adequate compensatory measures are implemented for Sprinkler System FP-M3A, FP-M4B, FP-M22 and/or FP-M24 when the fire water supply demand cannot be met due to the least demanding portion of the 4 inch fire main loop being out of service. This ensures the defense-in-depth concept with regard to fire protection is maintained.