NRR-PMDAPEm Resource

From: George, Andrea
Sent: Tuesday, September 08, 2015 7:53 AM
To: BICE, DAVID B (ANO)
Subject: 2nd Round Requests for Additional Information - ANO-1 NFPA 805 LAR - TAC No. MF3419
Attachments: MF3419 - Second Round RAIs.docx

Mr. Bice,

By letter dated January 29, 2014 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML14029A438), as supplemented by letters dated May 19, 2015 (ADAMS Accession No. ML15139A196), June 16, 2015 (ADAMS Accession No. ML15167A503), July 21, 2015 (ADAMS Accession No. ML15203A205), and August 12, 2015 (ADAMS Accession No. ML15224A729), Entergy Operations, Inc. (the licensee), submitted a license amendment request to transition the Arkansas Nuclear One, Unit 1 (ANO-1), fire protection program to one based on the National Fire Protection Association Standard 805 (NFPA 805), "Performance-Based Standard for Fire Protection for Light Water Reactor Electric Generating Plants," 2001 Edition, as incorporated into Title 10 of the Code of Federal Regulations (10 CFR) Section 50.48(c).

In the course of its review, the U.S. Nuclear Regulatory Commission (NRC) staff has determined that additional information is required in order to complete its evaluation. Please treat this email as formal transmittal of the second-round requests for additional information (RAIs), which are attached. As some portions of the July 21, 2015, and August 12, 2015, RAI responses are still under review, there may be additional second-round RAIs. A clarification call was held on September 2, 2015, where it was agreed that a response to these RAIs would be provided by October 5, 2015.

Should you have any questions or issues meeting the response date, please call or email.

Sincerely,

Andrea George
Project Manager
Division of Operating Reactor Licensing
U.S. Nuclear Regulatory Commission
301-415-1081

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REQUEST FOR ADDITIONAL INFORMATION

RELATED TO LICENSE AMENDMENT REQUEST TO TRANSITION FIRE PROTECTION

PROGRAM TO NATIONAL FIRE PROTECTION ASSOCIATION STANDARD 805

RENEWED FACILITY OPERATING LICENSE NO. DPR-51

ENTERGY OPERATIONS, INC.

ARKANSAS NUCLEAR ONE, UNIT NO. 1

DOCKET NO. 50-313

Fire Modeling (FM) RAI 05.01

Section 4.5.1.2, "Fire PRA," of the License Amendment Request (LAR) states that fire modeling was performed as part of the Fire PRA development (NFPA 805 Section 4.2.4.2).Section 2.7.3.4 of NFPA 805 states, in part, that the personnel who use and apply engineering analysis and numerical models (e.g., fire modeling techniques) shall be competent in that field and experienced in the application of these methods.

In its response to the second bullet of FM RAI 05in a letter dated June 16, 2015 (Agencywide Document Access and Management System (ADAMS) Accession No. ML15167A503), the licensee explained that Entergy's process for evaluating bids and proposals and for selection of suppliers ensures that individuals contracted to perform fire modeling tasks have the appropriate background and meet the necessary qualification requirements. However, the licensee did not address the process for qualifying Entergy personnel involved in fire modeling activities.

Describe how the qualifications of Entergy personnel involved in fire modeling activities met or will meet the requirements of NFPA 805 section 2.7.3.4 during the development of the application, before transition, during the transition period, and after transition.

Fire Protection Engineering (FPE) RAI 04.01

In its response to FPE RAI 04 in a letter dated June 16, 2015 (ADAMS Accession No. ML15167A503), the licensee stated that code compliance evaluations were performed for Sections 3.4.1(b), 3.4.1(c), 3.4.1(d), 3.4.1(e), 3.9.2 and 3.9.3 of NFPA 805 and that the compliance statement will change from "Complies" to "Complies with use of EEEEs." The licensee also stated that it will add the calculation reference to the Compliance Basis Section.

NFPA 805, Sections 3.4.1(b), (c), (d), and (e) address specific requirements for the industrial fire brigade members and do not specify an NFPA code as a means to satisfy the requirements. In response to FPE RAI 04, the licensee stated that CALC-ANOC-FP-08-00005 is the calculation that demonstrates compliance for these subparts. Based on a review of the ANO Unit 1 LAR, CALC-ANOC-FP-08-00005 compares the ANO fire protection program to the 2000 Edition of NFPA 600. While NFPA 600 contains many requirements for the formation, management, and utilization of an industrial fire brigade, there is not a one-for-one correlation between the NFPA 805 requirements contained in 3.4.1 (b), (c), (d) or (e) and NFPA 600.

In addition, the licensee provided information to supplement its compliance basis for NFPA 805 Section 3.4.1 (c) in its response to FPE RAI 02, which was submitted in a letter dated May 19, 2015 (ADAMS Accession No. ML15139A196).

Clarify whether the NFPA code evaluation will replace or supplement the compliance statements in the "Compliance Basis" section of LAR Attachment A and the response to FPE RAI 02. If so, describe how the NFPA code evaluation addresses the specific requirements contained in NFPA 805 Sections 3.4.1 (b), (c), (d), and (e). Also, because the licensee states that the fire brigade members are shared between Units 1 and 2, describe how the compliance basis for ANO-1 affects ANO-2, as approved in the Safety Evaluation for its current license condition for ANO-2 (ADAMS Accession No. ML14356A227).

FPE RAI 06.01

In its response to FPE RAI 06 in a letter dated June 16, 2015 (ADAMS Accession No. ML15167A503), the licensee stated that for a number of NFPA 805 Chapter 3 attributes, the compliance statement and compliance basis will be changing as described in its response. The NRC staff requests the following additional clarification related to the licensee's proposed compliance statement changes:

a. NFPA 805 Section 3.5.7 requires that individual fire pump connections to the yard fire main loop shall be provided and separated with sectionalizing valves between connections. In LAR Attachment A, the licensee stated that it complies and that the fire pump connections to the yard fire main loop are provided and separated with sectionalizing valves between connections per ANO-1 License Amendment 35. In its response to FPE RAI 06, the licensee stated that it is revising its compliance statement to "Complies by previous NRC Approval;"however, excerpts and citations were not provided from its NRC Safety Evaluation Report (SER) to demonstrate previous NRC approval. In its response to FPE RAI 04 in the same letter, the licensee also stated that it is changing its compliance statement from "Complies" to "Complies with Use of EEEEs" and the specific changes to its compliance basis were not described. Clarify if NFPA 805 Section 3.5.7 will have two compliance statements ("Complies with use of EEEEs" and "Complies by Previous NRC approval") and describe the bases for the applicable compliance statements. For example, if the licensee "Complies by Previous NRC approval," provide the specific excerpts from its submittal(s) and the SER(s) that substantiate the approval. If the licensee "Complies with Use of EEEEs," provide the specific NFPA code that was evaluated and the basis for its applicability to demonstrate compliance with these specific Chapter 3 requirements.

b. NFPA 805 Section 3.6.1 requires that for all power block buildings, Class III standpipe and hose systems will be installed in accordance with NFPA 14, "Standard for the Installation of Standpipe, Private Hydrant, and Hose Stations." In LAR Attachment A, the licensee stated that it "Complies with Use of EEEEs" and that the requirement was evaluated by the NFPA 14 code compliance evaluation. In its response to FPE RAI 06, the licensee revised its compliance statement to "Complies with Clarification" and its compliance basis to state that the Chapter 3 requirement was evaluated by the NFPA 14 code compliance evaluation and that the standpipe and hose systems are considered Class II and have been evaluated for acceptability. The licensee further stated that the ANO-1 License Amendment 35 SER is considered for information only and does not support compliance. The NRC-endorsed guidance in NEI 04-02, "Guidance for Implementing a Risk-Informed, Performance-Based Fire Protection Program Under 10 CFR 50.48(c)," Revision 2, Section

4.3.1, describes the compliance statement of "Complies with Clarification" as items that are not in "literal compliance" with NFPA 805, but should transition as complies. The example given in NEI 04-02 illustrates this strategy is applied in circumstances such as compliance methods that could be considered editorial in nature. The licensee's compliance basis is not considered to be an editorial clarification, such as described in NEI 04-02, and is outside the guidance in NEI 04-02 for being considered a "clarification." Provide a more appropriate compliance statement such as "Complies by Previous NRC Approval" and the cited excerpts from the submittal(s) and the SER(s) that substantiate the approval, or submit a performance-based method in accordance with 10CFR50.48(c)(2)(vii).

c. NFPA 805 Section 3.11.2 requires that fire barriers required by NFPA 805 Chapter 4 include a specific fire-resistance rating and that these fire barriers be designed and installed to meet the specific fire resistance rating using assemblies qualified by fire tests. In LAR Attachment A, the licensee states it "Complies with use of EEEEs" and cites excerpts from ANO-1 License Amendment 35, Section 4.11 and refers to an implementation item in LAR Attachment S (Table S-1, Item S1-31). In its response to FPE RAI 06, the licensee stated that its compliance basis will be revised to state that the requirement was evaluated by an engineering evaluation and that the ANO-1 License Amendment 35 SER is considered for information only and does not support compliance. Clarify if the compliance basis noted in FPE RAI 06 will replace the compliance basis in LAR Attachment A in its entirety and confirm if the implementation item that was described in the LAR Attachment A, compliance basis is still applicable.

Probabilistic Risk Assessment (PRA) RAI 01.g.01

In its response to PRA RAI 01.g in a letter dated June 16, 2015 (ADAMS Accession No. ML15167A503), the licensee explained that the Human Reliability Analysis (HRA) methodology used for the Fire PRA was revised after the LAR was submitted to be consistent with the approach used to address HRA RAIs for ANO-2 and that a focused scope peer review of the revised HRA was performed in June 2014. The NRC staff understands that the Facts and Observation (F&Os) from the HRA focused scope peer review superseded the previous HRA peer review F&Os. Provide the F&Os from the June 2014 focused scope peer review on the fire HRA along with dispositions explaining how the F&Os have been resolved or will be resolved in the integrated analysis provided in response to PRA RAI 03.

PRA RAI 01.e.01

In its response to PRA RAI 01.e in a letter dated July 21, 2015 (ADAMS Accession No. ML15203A205), the licensee stated that the updated state of knowledge correlation (SOKC) using hot short probabilities and hot short duration probabilities based on NUREG/CR-7150, Volume 2, "Expert Elicitation Exercise for Nuclear Power Plant Fire-Induced Electrical Circuit Failure" (ADAMS Accession No. ML14141A129), will be incorporated into the uncertainty analysis update. Confirm that the updated SOKC using hot short probabilities and hot short duration probabilities based on NUREG/CR-7150, Volume 2, will be incorporated into the integrated analysis provided in response to PRA RAI 03.

PRA RAI 04.01

In a letter dated June 16, 2015 (ADAMS Accession No. ML15167A503), the licensee responded to PRA RAI 04. The response to PRA RAI 04 does not describe planned administrative controls

in enough detail to justify use of a reduced Heat Release Rate (HRR) of 69 kW in the Fire PRA for the seven fire zones identified in the response. The response partially describes administrative controls by explaining that transient combustibles are prohibited "without performing an evaluation and/or establishing appropriate compensatory measures." However, the response does not indicate what evaluations will be performed or explain what kinds of compensatory measures may be implemented. It is not clear from the description, for example, whether quantities of combustible materials that have the potential to result in fires exceeding the reduced HRR credited in the Fire PRA will be allowed into these areas. If such quantities are allowed, it is not clear how administrative controls ensure a basis for use of the reduced HRRs in the Fire PRA. One type of compensatory action referred to in the response is "continuous fire watch for any transient combustibles materials left unattended" for maintenance activities. The NRC staff notes that a continuous fire watch would have the effect of reducing the frequency of possible fire scenarios opposed to limiting the size of the fire and the associated HRR. In light of these observations:

Describe the kinds of evaluations that will be performed for transient combustibles brought into these controlled areas, what the evaluation will be used for, and whether administrative controls will preclude quantities that could lead to fires greater than 69 kW. If combustible materials are allowed into these areas that could lead to fires greater than 69 kW, then describe what materials would be allowed, any limitations on such materials, and why use of a reduced HRR of 69 kW for these materials is justified.