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June 23, 2020  
L-20-183

10 CFR 50.90

ATTN: Document Control Desk  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555-0001

**SUBJECT:**

Davis-Besse Nuclear Power Station  
Docket No. 50-346, License No. NPF-3  
Response to Request for Additional Information Regarding License Amendment  
Request for Adoption of TSTF-425, Revision 3, "Relocate Surveillance Frequencies to  
Licensee Control – Risk Informed Technical Specification Task Force (RITSTF)  
Initiative 5b" (EPID L-2019-LLA-0252)

By letter dated November 14, 2019 (Accession No. ML19318F668), FirstEnergy Nuclear Operating Company (FENOC) submitted an amendment application for the Davis-Besse Nuclear Power Station (Davis-Besse). The proposed amendment would modify the Davis-Besse Technical Specifications (TS) by relocating specific surveillance frequencies to a new surveillance frequency control program. The changes are based on Nuclear Regulatory Commission (NRC)-approved Technical Specification Task Force (TSTF) Traveler TSTF-425, Revision 3, "Relocate Surveillance Frequencies to Licensee Control – Risk Informed Technical Specification Task Force (RITSTF) Initiative 5b."

Effective February 27, 2020, the facility operating license for Davis-Besse was transferred from FirstEnergy Nuclear Generation, LLC (owner) and FENOC (operator) to Energy Harbor Nuclear Generation LLC (owner) and Energy Harbor Nuclear Corp. (operator) (Accession No. ML20030A440). Upon completion of this license transfer, Energy Harbor Nuclear Corp. assumed the responsibility for all licensing actions under NRC review at the time of the transfer (Accession No. ML20054B733).

By electronic mail dated June 2, 2020 (Accession No. ML20154K764), the NRC staff requested additional information to complete the review of the proposed amendment. Energy Harbor Nuclear Corp. hereby provides the response to the request for additional information in the attachment.

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There are no regulatory commitments contained in this submittal. If there are any questions or additional information is required, please contact Mr. Thomas A. Lentz, Manager, Nuclear Licensing and Regulatory Affairs, at (440) 280-5567.

I certify under penalty of perjury that the foregoing is true and correct. Executed on June 23, 2020.

Sincerely,

A handwritten signature in dark ink, appearing to read 'Terry Brown', with a stylized flourish at the end.

Terry J. Brown

Attachment:  
Response to Request for Additional Information

cc: NRC Region III Administrator  
NRC Resident Inspector  
NRR Project Manager  
Utility Radiological Safety Board  
Executive Director, Ohio Emergency Management Agency,  
State of Ohio (NRC Liaison)

Response to Request for Additional Information  
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The Nuclear Regulatory Commission (NRC) staff is reviewing the proposed license amendment request (LAR) that would revise the Davis-Besse Nuclear Power Station (Davis-Besse) Technical Specifications (TS) by relocating specific surveillance frequencies to a new surveillance frequency control program. The changes are based on NRC-approved Technical Specification Task Force (TSTF) Traveler TSTF-425, Revision 3, "Relocate Surveillance Frequencies to Licensee Control – Risk Informed Technical Specification Task Force (RITSTF) Initiative 5b." The requested information is provided below in bold typeface, followed by the Energy Harbor Nuclear Corp. response.

**Request for Additional Information (RAI) 1**

**Enclosure B of the LAR provides documentation of the technical adequacy of the probabilistic risk assessment (PRA) for Davis-Besse. Section 2.3, "Applicability of Peer Review Findings and Observations (F&Os),"<sup>1</sup> of LAR Enclosure B states that an independent assessment and closeout review for the PRA was conducted in October 2017 in accordance with Appendix X to the Nuclear Energy Institute (NEI) guidance document NEI 05-04.<sup>2</sup> The NRC has not officially endorsed the guidance in Appendix X, but licensees may use the guidance on an interim basis subject to the conditions of acceptance outlined in a May 3, 2017, letter from the NRC to NEI.<sup>3</sup>**

**Provide the following information regarding the October 2017 closure review:**

- a. Describe how the selection of members for the October 2017 independent assessment met the five criteria in Section X.1.3 of Appendix X to NEI 05-04.**

Response:

The independent assessment team followed the guidance provided in Appendix X to NEI 05-04 in its entirety. The assessments of F&O closures were performed in the context of the technical requirements in Addendum A of the PRA Standard, ASME/ANS RA-Sa-2009, except for F&Os generated from the Seismic PRA, which followed Addendum B of the PRA Standard, ASME/ANS RA-Sb-2013.

Section X.1.3 of Appendix X to NEI 05-04 provides the following five criteria in the selection of members for an independent assessment team.

***Criterion 1: Every member of the independent assessment team should be independent of the PRA associated with the F&Os being reviewed, per the***

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<sup>1</sup> Findings and observations are also referred to as facts and observations.

<sup>2</sup> Appendix X, "Close Out of Facts and Observations (F&Os)" (ADAMS Accession No. ML17086A451), to NEI 05-04, Revision 2, "Process for Performing Internal Events PRA Peer Reviews Using the ASME/ANS PRA Standard" (ADAMS Accession No. ML083430462).

<sup>3</sup> ADAMS Accession No. ML17079A427.

*criteria of “independent” in the ASME/ANS PRA Standard. These members may be contractors, utility personnel, or employees of other utilities, and may include members of peer review teams that previously reviewed the models being assessed.*

The independent assessment was performed through the Pressurized Water Reactor Owners Group (PWROG) to ensure the assessment team was fully independent by including industry peers from utilities and contractors on the review team. The independent assessment report provides signed statements of independence from all reviewers. Energy Harbor Nuclear Corp. (formerly known as FirstEnergy Nuclear Operating Company or FENOC) verified the statements of independence listed in the independent assessment report.

*Criterion 2: Every member of the independent assessment group should meet the relevant peer reviewer qualifications as stated in the ASME/ANS PRA Standard for the technical elements associated with the F&Os being reviewed.*

The independent assessment report provides reviewer qualification requirements for both team lead and team members. As stated in the report, Energy Harbor Nuclear Corp. and the independent assessment team leads reviewed the team resumes and qualifications and confirmed that they meet the expectations documented in the ASME/ANS PRA Standard and Appendix X to NEI 05-04.

*Criterion 3: The overall review team experience includes two qualified reviewers for each F&O. An exception to this is allowed for the closure of an F&O related to a single SR, in which case, a single independent reviewer is acceptable, in alignment with the peer review guidance in the main body of this document and in accordance with the ASME/ANS PRA Standard.*

The independent assessment was conducted over a three-week period, each week with a different set of reviewers with one individual participating for two weeks. A total of seven qualified reviewers reviewed F&Os for the first week, including all findings from Internal Events and Internal Flooding PRA models. In the second week, eight qualified reviewers covered F&Os from the Seismic PRA. On the last week, the Fire PRA F&Os were reviewed by five qualified reviewers. Reviewed PRA documents were provided to the review team at least two weeks prior to the scheduled review. A lead reviewer and supporting reviewer were assigned for each F&O. In addition, a consensus review was performed at the end of each day with the entire team.

*Criterion 4: Each member of the independent assessment team should be knowledgeable about the F&O independent assessment process used to assess the adequacy of the F&O resolution.*

As part of the independent assessment schedule, all reviewers, regardless of experience, attended specific training prior to the review. The content of this

training covered the guidance and expectations within Appendix C to NEI 05-04 and the ASME/ANS PRA Standard.

***Criterion 5:** The total number of reviewers is a function of the scope and number of finding F&Os to be reviewed for closure.*

Based on the scope of the review, and the time allocated for each of the three independent assessment teams (one week for each assessment team), the number of F&Os assigned to each reviewer and the time allocated to each review team was determined to be adequate in the independent assessment report.

- b. Explain how closure of the F&Os was assessed to ensure that the capabilities of the PRA elements, or portions of the PRA within the elements, met capability category II for supporting requirements in ASME/ANS RA-Sa-2009,<sup>4</sup> as endorsed by NRC Regulatory Guide (RG) 1.200, Revision 2.<sup>5</sup>**

Response:

For all Davis-Besse PRA peer reviews, it was requested that the peer review teams review supporting requirements (SRs) to Capability Category II from the PRA Standard. If a supporting requirement did not meet Capability Category II, it was requested that the team write a F&O to meet Capability Category II.

F&O closures were reviewed by the independent assessment team following the consensus process described in NEI 05-04. F&Os were evaluated to determine which could be considered closed based on an adequate disposition. All SRs associated with open F&Os were also reviewed against the requirements from the ASME/ANS PRA Standard. If the SRs were not already met at Capability Category II, they were re-reviewed to Capability Category II or requested to be left open.

- c. Discuss whether the scope of the F&O closure review included all finding-level F&Os, including F&Os where the supporting requirements were met. If not, identify and describe any F&Os that were excluded from the F&O closure review and provide the disposition of these F&Os for this application.**

Response:

The scope of the F&O closure review included all finding-level F&Os regardless of whether the supporting requirements were met; no suggestion-level F&Os were reviewed.

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<sup>4</sup> ASME/ANS RA-Sa-2009, "Addenda to ASME/ANS RA-S-2008, Standard for Level 1/Large Early Release Frequency Probabilistic Risk Assessment for Nuclear Power Plant Applications," is a joint standard of the American Society of Mechanical Engineers (ASME) and the American Nuclear Society (ANS).

<sup>5</sup> NRC RG 1.200, Revision 2, "An Approach for Determining the Technical Adequacy of Probabilistic Risk Assessment Results for Risk-Informed Activities," March 2009 (ADAMS Accession No. ML090410014).

In response to F&O PRM-B10-01, modeling changes as part of addressing the finding resulted in a PRA upgrade. Based on the scope of this PRA upgrade, the independent assessment team did not review the open F&O and marked F&O PRM-B10-01 as not reviewed. The 2017 Fire PRA Focused Scope Peer Review reviewed F&O PRM-B10-01 superseding the original 2013 Fire peer review. Subsequent findings and their disposition from the focused scope peer review have been provided in the license amendment request.

## **RAI 2**

**Adoption of TSTF-425 requires a PRA of sufficient technical adequacy that meets capability category II of the applicable standards endorsed in RG 1.200, Revision 1 (ADAMS Accession No. ML070240001). Table 1 in LAR Enclosure B provides the independent assessment of F&O SY-B11, which concerns the lack of modeling of the emergency diesel generator actuation signals from the undervoltage relays and the safety features actuation system. The independent assessment indicates that FENOC's justification for not modeling these actuation signals meets the requirements of capability category I, but does not meet capability category II or III. The independent assessment also found that the F&O requires a review for other instances where the actuation logic may not have been modeled.**

**Provide the results of the review of F&O SY-B11. Describe the actions taken based on the results of this review and the effect on the LAR.**

Response:

In addressing F&O SY-B11, it was determined that the Class 1-E 4160V [volt] bus low voltage signal and safety features actuation system (SFAS) sequencer permissive actuation logic were the only additional modeling and documentation changes needed to address the finding. These changes have a negligible impact on the importance measures of the modeled systems and therefore do not impact the LAR. These modeling changes have been made to the working model, which is to go in effect June of 2021. These modeling changes are considered model maintenance per the definition in the ASME/ANS PRA Standard. For all surveillance frequency changes performed before these modeling changes go into effect, the application assessment model is to include these changes if a surveillance frequency change explicitly impacts those systems, structures, or components addressed in response to F&O SY-B11 in accordance with NEI 04-10.

## **RAI 3**

**On June 21, 2019 (ADAMS Accession No. ML19100A306), the NRC staff issued Amendment No. 298 to the Davis-Besse license, which authorized the transition to a fire protection program based on the National Fire Protection Association Standard 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). Section 3.4.3.2, "Fire PRA Model," of the associated safety evaluation for Amendment No. 298 states, in part, that:

... the licensee stated that a finding related to fire-induced MSO [multiple spurious operation] modeling constituted an upgrade to the [fire PRA] model, so a focused-scope peer review was performed. The peer review determined that the supporting requirements applicable to the MSO modeling were all met at [capability category II] or higher. The NRC staff determined that the performance of the focused-scope peer review for this PRA upgrade is consistent with the ASME/ANS RA-Sa-2009 standard, as qualified by RG 1.200.

Table 2 of LAR Enclosure B provides five finding-level F&Os related to the fire PRA which remained open after the October 2017 independent assessment. The LAR states, in part, that F&Os ES-A1-01 and FQ-A1-01 have been resolved by making appropriate changes to the PRA model as identified in the F&O. However, the LAR indicates that closure of these F&Os would also entail identifying and addressing similar issues.

- a. F&O ES-A1-01 identifies modeling errors associated with MSO scenarios. The LAR states that a possible resolution of this F&O involves correcting the identified modeling issues *and addressing similar issues* that may exist.

Provide the results of the review to identify and address other similar issues. Describe the actions taken based on the results of this review and the effect on the LAR.

- b. F&O FQ-A1-01 indicates that incorrect values were used for the spurious operation probability for the pressurizer pilot-operated relief valves. The LAR states that a possible resolution of this F&O involves reviewing the pilot-operated relief valve circuitry to ensure single-break and double-break circuitry is correct and reviewing the circuit failure likelihood analysis results *for other unique types of failure modes*.

Provide the results of the review to address similar issues including other unique types of failure modes. Describe the actions taken based on the results of this review and the effect on the LAR.

Response:

The response to RAI 3.a and RAI 3.b is combined into the following discussion.

Neither of the Fire PRA findings, F&O ES-A1-01 and F&O FQ-A1-01, impact the capability category of the supporting requirements (SRs), which are met to Capability Category II. There was evidence indicating the SRs associated with each finding were met, though discrepancies were identified in the findings and have been addressed and

corrected. To date, additional issues have not been identified beyond those identified in the findings. A review of the analysis has not yet been completed to fully verify there are no similar issues. That review will be done before the Fire PRA model is made effective in June of 2021.

Until the Fire PRA model becomes effective, the working Fire PRA model is only to be used for consideration of the Fire PRA model insights as a sensitivity, as described in NEI 04-10, as it does not fully reflect the as-built, as-operated plant. Once the Fire PRA model becomes effective to support the NFPA-805 implementation, and reflects the as-built, as-operated plant, then the Fire PRA model is to be used as part of the integrated analysis to evaluate the surveillance frequency change. The cumulative impact of all prior surveillance frequency changes is to be assessed with the Fire PRA model once it becomes effective.

When the NFPA-805 submittal was referenced to review the 2018 Focused Scope Peer Review open F&Os, no discussion of the F&Os was found, nor were the F&Os attached. Attachment W of the NFPA-805 LAR correctly stated that all PRA Standard Supporting Requirements (SRs) reviewed in the 2018 Focused Scope Peer Review met Capability Category II. However, new findings were not attached to the revised LAR for NFPA-805, nor were the superseded findings deleted. A condition report (CR) was written to document the deficiency (CR-2020-04697). These new findings from the 2018 Focused Scope Peer Review were disclosed in the TSTF-425 LAR.

F&O PRM-B10-01 from the 2013 Fire PRA peer review impacted eight SRs shown below in Table 1. F&O PRM-B10-01 was dispositioned and provided in the NFPA-805 LAR. The NRC reviewed and approved how that open finding was addressed, which was the same analysis that was peer reviewed in the 2018 focused scope peer review.

**Table 1: Supporting Requirements Associated with PRM-B10-01 From 2013 Fire PRA Peer Review**

<b>SR</b>	<b>Capability Category</b>
ES-A4	Not Met
ES-B3	Not Met
ES-B5	Not Met
PRM-B10	Not Met
FQ-A1	Met
FQ-A2	Met
FQ-A3	Met
FQ-A4	Met

The 2018 Fire PRA focused scope peer review scope included 17 SRs associated with Multiple Spurious Operations (MSO), which included the eight SRs associated with the original F&O PRM-B10-01. The 17 SRs within the scope of the 2018 focused scope peer review are shown in Table 2. The five findings from the 2018 focused scope peer review (F&O ES-A1-01, F&O ES-A1-02, F&O ES-A1-03, F&O ES-D1-01, and F&O



FQ-A1-01) supersede F&O PRM-B10-01, and the SRs were assessed as met at Capability Category II or higher. These new findings were specific issues found in the review that the team assessed as findings to be corrected before implementation of the model.

**Table 2: Supporting Requirements Reviewed During the 2018 Fire PRA Focused Scope Peer Review**

<b>SR</b>	<b>Capability Category</b>	<b>F&amp;Os</b>
*ES-A1	Met	ES-A1-01 (F), ES-A1-02 (F), ES-A1-03 (F)
*ES-A2	Met	
ES-A4	I/II	
*ES-A5	III	
*ES-A6	III	
*ES-B2	II	
ES-B3	Met	
*ES-B4	Met	
ES-B5	N/A	
*ES-C2	III	ES-C2-01 (S)
*ES-D1	Met	ES-D1-01 (F)
*PRM-B3	Met	
PRM-B10	Met	ES-A1-01 (F), ES-A1-02 (F), ES-A1-03 (F)
FQ-A1	Met	FQ-A1-01 (F)
FQ-A2	Met	
FQ-A3	Met	
FQ-A4	Met	

\* Supporting Requirements were not related to F&O PRM-B10-01 from the 2013 peer review.

(F) indicates a finding-level F&O, (S) indicates a suggestion-level F&O