



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

October 26, 2012

Mr. Raymond A. Lieb, Vice President
Davis-Besse Nuclear Power Station
FirstEnergy Nuclear Operating Company
5501 North State Route 2
Oak Harbor, OH 43449

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION FOR THE REVIEW OF THE
DAVIS-BESSE NUCLEAR POWER STATION (TAC NO. ME4640)

Dear Mr. Lieb:

By letter dated August 27, 2010, FirstEnergy Nuclear Operating Company submitted an application pursuant to Title 10 of the *Code of Federal Regulations* Part 54 for renewal of Operating License No. NPF-3 for the Davis-Besse Nuclear Power Station. The staff of the U.S. Nuclear Regulatory Commission (NRC or the staff) is reviewing this application in accordance with the guidance in NUREG-1800, "Standard Review Plan for Review of License Renewal Applications for Nuclear Power Plants." During its review, the staff has identified areas where additional information is needed to complete the review. The staff's requests for additional information are included in the enclosure. Further requests for additional information may be issued in the future.

Items in the enclosure were discussed with Cliff Custer, of your staff, and a mutually agreeable date for the response is within 30 days from the date of this letter. If you have any questions, please contact me by telephone at 301-415-2946 or by e-mail at Samuel Cuadrado de Jesus@nrc.gov.

Sincerely,

A handwritten signature in black ink, appearing to read "Samuel Cuadrado de Jesus".

Samuel Cuadrado de Jesus, Project Manager
Reactor Projects Branch 1
Division of License Renewal
Office of Nuclear Reactor Regulation

Docket No. 50-346

Enclosure:
As stated

cc w/encl: Listserv

DAVIS-BESSE NUCLEAR POWER STATION
LICENSE RENEWAL APPLICATION
REQUEST FOR ADDITIONAL INFORMATION

Follow-up RAI B.2.43-1

Background:

By letter dated August 16, 2012, the applicant responded to an request for additional information (RAI) regarding the protective coatings being applied to the exterior surfaces of the concrete shield building. The response noted that an acrylic waterproofing system would be used on the walls, while a polyurethane elastomeric coating would be used on the dome. The RAI response provided information on the selected coatings and how they would be inspected.

Issue:

1. The RAI response provides qualitative acceptance criteria for the new shield building coating. In an earlier RAI response, dated May 24, 2011, the applicant committed (Commitment No. 20) to use quantitative acceptance criteria based on the guidelines of Chapter 5 of American Concrete Institute (ACI) 349.3R for inspections conducted under the Structures Monitoring Program. It is not clear if Commitment No. 20 applies to the new coating inspections conducted under the Shield Building Monitoring Program.
2. The RAI response notes that coating inspections will be conducted on at least a five year frequency and that a preventive maintenance task has been established to reapply the coating on a 15 year interval. This information is not in the license renewal application (LRA) Appendix A Updated Safety Analysis Report (USAR) supplement.
3. The RAI response discusses the qualifications of the coating system being applied to the shield building walls; however, it does not provide similar information for the shield building dome.

Request:

1. Clarify whether or not the quantitative acceptance criteria in Chapter 5 of ACI 349.3R will be applied to the coating inspections conducted under the Shield Building Monitoring Program. Specifically the guidance and quantitative limits for coatings discussed in Section 5.1.4. If the ACI 349.3R acceptance criteria will be used, include a statement to that effect in the USAR supplement. If the ACI 349.3R criteria will not be used, provide a justification for the acceptance criteria being used.
2. Include the inspection interval and the recoating interval in the LRA Appendix A USAR supplement. This information, along with the information requested in Part 1, is necessary to provide the appropriate level of detail in the USAR supplement, per 10 CFR 54.21(d).
3. Provide information that demonstrates that the selected coating for the shield building dome will be capable of preventing moisture ingress during an extreme weather event, similar to the blizzard of 1978.

ENCLOSURE

Follow-up RAI B.2.43-2

Background:

By letter dated August 16, 2012, the applicant responded to an RAI regarding the proposed monitoring methods for the shield building cracking. The RAI response notes that non-destructive impulse response (IR) testing had been completed on all accessible portions of the shield building wall and the testing confirmed the assumed crack locations. The response also notes that the proposed inspection sample size of six cracked and six uncracked core bores is adequate to identify any changes in the laminar cracking.

Issue:

1. The RAI response does not clearly explain why six pairs (1 cracked, 1 uncracked) of core bores is an adequate sample size to detect changes in the laminar cracking, when indications of cracking were identified in all 16 shoulder regions.
2. The RAI response does not explain why one-time IR testing of the shield building is adequate.

Request:

1. Provide justification for the use of six core bore pairs to monitor cracking and explain how this value was chosen. The response should provide a justification for not including at least one core bore pair in each flute shoulder.
2. Identify a frequency for conducting IR testing (or equivalent non-destructive examination), on the shield building during the period of extended operation, or explain why additional testing is unnecessary.

Follow-up RAI B.2.43-3

Background:

By letter dated August 16, 2012, the applicant responded to an RAI regarding the scope of the proposed Shield Building Monitoring Program. The RAI response notes that there were four conditions required to cause the laminar cracking and that the shield building is the only plant structure that has all four conditions. Per the RAI response, the conditions are: significant moisture intrusion, low temperatures, the flute shoulder configuration, and an unsealed concrete surface. The response further states that the design features of all other concrete structures within the scope of license renewal prevent the occurrence of similar cracking. To verify this, core bores were taken and IR testing was conducted on one wall of the auxiliary building. The results showed no indications of laminar cracking.

Issue:

1. The response states that the flute shoulder configuration was one of the conditions that led to the laminar cracking; however, laminar cracking was also identified around the main steam line penetrations and in the top 20 feet of the shield building. Since cracking was identified outside of the flute shoulders, in areas that are not necessarily unique to the shield building in regards to design, it appears that other structures may be susceptible to similar laminar cracking.
2. The response does not explain why the auxiliary building wall was chosen to verify cracking has not occurred in other structures.
3. The response does not clearly explain why inspections of one wall are adequate to verify that laminar cracking has not occurred in any other structure within the scope of license renewal. The response also does not discuss whether any testing has been done in areas similar to those where cracking was found in the shield building (e.g., near steam line penetrations).
4. If other structures are susceptible to similar cracking, it is unclear how the cracking will be managed during the period of extended operation. The response states that although other structures within the scope of license renewal have exterior coatings, the coating is not relied upon to prevent sub-surface laminar cracking.

Request:

1. Explain why no other structures within the scope of license renewal are susceptible to laminar cracking, when shield building laminar cracking was identified in areas outside of the flute shoulders.
2. Explain why the auxiliary building wall was chosen for testing and what makes it representative of other walls on-site (e.g., it is uncoated, it faces into the worst wind direction, it bounds other walls on site, etc.).
3. Explain why inspections of one wall are adequate to verify laminar cracking has not occurred on any structure within the scope of license renewal, or propose additional testing that will verify cracking has not occurred elsewhere. The response should also include a discussion of any testing done in locations similar to those in the shield building, or why that testing is unnecessary.
4. If the response to Part 1 indicates that other structures may be susceptible to laminar cracking, explain how cracking will be managed in susceptible structures during the period of extended operation. If coatings will be relied upon (new or existing) to manage aging, the inspection methods, inspector qualifications, acceptance criteria, etc. that are being used for the shield building coatings should apply to all coatings.

October 26, 2012

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Sincerely,

/RA/

Samuel Cuadrado de Jesus, Project Manager
Reactor Projects Branch 1
Division of License Renewal
Office of Nuclear Reactor Regulation

Docket No. 50-346

Enclosure:

As stated

cc w/encl: Listserv

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*concurring via email

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NAME	YEdmonds	SCuadrado	DMorey	SCuadrado
DATE	10/25/2012	10/25/2012	10/26/2012	10/26/2012

OFFICIAL RECORD COPY

Letter to R. Lieb from S. Cuadrado de Jesus dated October 26, 2012

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION FOR THE REVIEW OF THE
DAVIS-BESSE NUCLEAR POWER STATION (TAC NO. ME4640)

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