



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

July 17, 2013

LICENSEE: FirstEnergy Nuclear Operating Company  
FACILITY: Davis-Besse Nuclear Power Station  
SUBJECT: SUMMARY OF TELEPHONE CONFERENCE CALL HELD ON OCTOBER 16, 2012, BETWEEN THE U.S. NUCLEAR REGULATORY COMMISSION AND FIRSTENERGY NUCLEAR OPERATING COMPANY, CONCERNING REQUESTS FOR ADDITIONAL INFORMATION PERTAINING TO THE DAVIS-BESSE NUCLEAR POWER STATION, LICENSE RENEWAL APPLICATION (TAC. NO. ME4640)

The U.S. Nuclear Regulatory Commission (NRC or the staff) and representatives of FirstEnergy Nuclear Operating Company (FENOC or the applicant) held a telephone conference call on October 16, 2012, to discuss and clarify the applicant's response to request for additional information (RAI) B.2.4-1 and draft follow-up RAIs concerning the Davis-Besse Shield Building Monitoring Program in the Davis-Besse License Renewal Application (LRA).

Enclosure 1 provides a listing of the participants and Enclosure 2 contains a description of the staff concerns discussed with the applicant. A brief description on the status of the items is also included.

The applicant had an opportunity to comment on this summary.

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

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

Docket No. 50-346

Enclosures:

1. List of Participants
2. List of Requests for Additional Information

cc w/encls: See next page

SUMMARY OF TELEPHONE CONFERENCE CALL  
DAVIS-BESSE  
LICENSE RENEWAL APPLICATION

LIST OF PARTICIPANTS  
October 16, 2012

PARTICIPANTS

AFFILIATIONS

Brian Harris	U.S. Nuclear Regulatory Commission (NRC)
Bryce Lehman	NRC
Robert Sun	NRC
Cliff Custer	FirstEnergy Nuclear Operating Company (FENOC)
Steven Dort	FENOC
Larry Hinkle	FENOC
Don Kosloff	FENOC
Jon Hook	FENOC
Richard Bair	FENOC
Tim Ridlon	FENOC
Joseph Brunkhorst	FENOC
Thomas Henry	FENOC

SUMMARY OF TELEPHONE CONFERENCE CALL  
DAVIS-BESSE  
LICENSE RENEWAL APPLICATION

October 16, 2012

The U.S. Nuclear Regulatory Commission (NRC or the staff) and representatives of FirstEnergy Nuclear Operating Company (FENOC or the applicant) held a telephone conference call on October 16, 2012, to discuss and clarify the applicant's response to request for additional information (RAI) B.2.4-1 and draft follow-up RAIs concerning the Davis-Besse Shield Building Monitoring Program in the Davis-Besse License Renewal Application (LRA).

**RAI B.2.4-1 response provided May 24, 2011**

**Discussion:**

The staff requested clarification of the applicant's response to RAI B.2.4-1 regarding the management of high strength bolting. The staff and the applicant agreed that additional information regarding inspection of high strength bolts and a discussion regarding the use of molybdenum disulfide as a lubricant on high strength bolting would add clarification to the applicant's response.

**Action:**

The applicant will supplement the response to RAI B.2.4-1 specifically addressing statements regarding inspection of high strength bolting, and will include a discussion regarding the use of molybdenum disulfide as a lubricant on high strength bolting.

**Draft Follow-up RAIs B.2.43-1, B.2.43-2 and B.2.43-3**

**Discussion:**

The staff and the applicant discussed the draft RAIs and agreed that the following items should be addressed in the applicant's response to the RAIs:

- Describe how and why the roof coating is different from the walls.
- Justify why the number of core bores in the shoulders on the shield building that are to be inspected is acceptable.
- Explain why other in-scope structures that were not coated were not affected, including a discussion of why the structure geometry is important in the conclusion.

**Action:**

The staff will issue the following follow-up RAIs:

**Follow-up RAI B.2.43-1**

Background:

By letter dated August 16, 2012, the applicant responded to an 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 LRA Appendix A Updated Standard 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 5.4.1. 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 Request (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 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.

### **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 Request (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.

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FACILITY: Davis-Besse

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Samuel Cuadrado de Jesús, Project Manager  
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OFFICE	LA:RPB1:DLR*	PM:RPB1:DLR	BC:RPB1:DLR
NAME	YEdmonds	SCuadrado de Jesús	DMorey
DATE	7/17/2013	7/17/2013	7/17/2013

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EMiller  
MMahoney  
DMcIntyre, OPA  
TRiley, OCA  
BHarris, OGC