



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

February 27, 2012

LICENSEE: FirstEnergy Nuclear Operating Company

FACILITY: Davis-Besse Nuclear Power Station

SUBJECT: SUMMARY OF TELEPHONE CONFERENCE CALL HELD ON  
AUGUST 2, 2011, 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 August 2, 2011, to discuss and clarify the applicant's response to the staff's requests for additional information (RAIs) and new draft RAIs concerning the Davis-Besse license renewal application.

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

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: Listserv

SUMMARY OF TELEPHONE CONFERENCE CALL  
DAVIS-BESSE  
LICENSE RENEWAL APPLICATION

LIST OF PARTICIPANTS  
August 2, 2011

<u>PARTICIPANTS</u>	<u>AFFILIATIONS</u>
Samuel Cuadrado de Jesús	U.S. Nuclear Regulatory Commission (NRC)
Seung Min	NRC
Robert Sun	NRC
John Klos	NRC
Michelle Kichline	NRC
James Gavula	NRC
Roger Kalikian	NRC
Seung Min	NRC
Lane Howard	Center for Nuclear waste Regulatory Analyses (CNWRA)
Elizabeth Trillo	CNWRA
Cliff Custer	FirstEnergy Nuclear Operating Company (FENOC)
Steven Dort	FENOC
Larry Hinkle	FENOC
Don Kosloff	FENOC
Kathy Nesser	FENOC
Allen McAllister	FENOC

SUMMARY OF TELEPHONE CONFERENCE CALL  
DAVIS-BESSE  
LICENSE RENEWAL APPLICATION  
August 2, 2011

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 August 2, 2011, to discuss and clarify the following responses to the requests for additional information (RAIs) and new draft RAIs concerning the Davis-Besse license renewal application (LRA).

**Response RAI 3.3.2.3.14-1**

**Discussion:**

The staff stated that it reviewed the applicant's June 3, 2011, response to RAI 3.3.2.3.14-1. The staff also stated that it disagrees with the applicant's justification, documented in its response, for not identifying loss of preload for steel bolting exposed to an external environment of raw water. The staff further stated that aging mechanisms do exist and loss of pre-load could occur.

The applicant stated that it will supplement the response to add a row in LRA Table 3.3.2-14 for loss of pre-load. The applicant stated that it will include the supplemental response with the upcoming RAI that is due August 11, 2011. The NRC staff agreed to this action and noted that some additional detail should be provided on how the loss of pre-load will be managed for the subject submerged bolting (e.g., opportunistic inspections or pump performance).

**ACTION:** The applicant will supplement the response to RAI 3.3.2.3.14-1 to add a row for loss of pre-load in LRA Table 3.3.2-14.

**Followup One-Time Inspection Program LRA Amendment**

**Discussion:**

The staff noted that LRA Section B.2.30 amendment dated June 3, 2011, states an enhancement that the "scope" program element is to include visual and volumetric inspections of the stainless steel makeup pump casings for cracking due to cyclic loading but it does not state what type of visual examinations will be used to detect cracking.

The staff also stated that the GALL Report AMP XI.M32, "One-Time Inspection" states in the "detection of aging effects" program element that the program manages cracking due to cyclic loading using enhanced visual (EVT-1 or equivalent), surface, or volumetric examinations. Some types of visual examination may not be sufficient to identify cracking and it is unclear what visual examinations will be performed to meet this need.

The staff requested a discussion, followed by a docketed letter response later, of the type of visual examinations that will be used to identify cracking as part of the One-Time Inspection Program.

The applicant asked for clarification regarding whether the inspection is required to be an enhanced VT-1 visual examination, or could an alternative method such as volumetric examination be performed to identify cracking. The staff stated that there are other options listed in Revision 2 of the GALL Report. The applicant agreed to provide an update to identify the types of examinations that may be performed to identify cracking in components managed by the One-Time Inspection Program.

**ACTION:** The applicant is to provide a docketed response to identify the types of examinations that may be used to identify cracking as part of the One-Time Inspection Program.

### **Draft followup RAI B.2.34-2**

#### **Discussion:**

Previous to the telephone conference call the staff provided the applicant with draft RAI B.2.34-2 as follows:

#### **Background**

In its response to RAI B.2.34-1, the applicant stated that according to the certificate of material test report (CMTR) for the reactor head closure studs, the actual measured yield strength varied from 151 to 159 ksi, and the tensile strength varied from 166 to 171 ksi. The applicant also stated that its reactor head stud material is SA-540, Grade B-23 and that as provided in Regulatory Guide (RG) 1.65, "Materials and Inspections for Reactor Vessel Closure Studs," this material when tempered to a maximum tensile strength of 170 ksi, is relatively immune to stress corrosion cracking (SCC). The Reactor Head Closure Studs Program was amended to include an enhancement to preclude the future use of replacement closure stud bolting fabricated from material with actual measured yield strength greater than or equal to 150 ksi, except for use of the existing spare reactor head closure stud bolting.

The "preventive actions" program element of GALL Report AMP XI.M3, "Reactor Head Closure Stud Bolting," references the guidance in RG 1.65 and NUREG-1339, "Resolution of Generic Safety Issue 29: Bolting Degradation or Failure in Nuclear Power Plants." GALL Report AMP XI.M3 states that one of the preventive measures that can reduce the potential for SCC includes using bolting material for closure studs that has an actual measured yield strength less than 150 ksi.

#### **Issue**

LRA Section B.2.34 states that the Reactor Head Closure Program is an existing program that with enhancements will be consistent with the 10 elements of an effective aging management program as described in GALL Report AMP XI.M3. All of the applicant's reactor head closure studs were fabricated from material with measured yield strength above 150 ksi and some of the furnished materials have a measured tensile strength above 170 ksi. The staff noted that this is an exception to the "preventive actions" program element of GALL AMP XI.M3.

### **Request**

- (1) Revise the appropriate sections of the LRA to reflect the use of reactor head closure studs with measured yield strength above 150 ksi as an exception to GALL Report AMP XI.M3.
- (2) In view of the greater susceptibility to SCC of the studs, justify the adequacy of the Reactor Head Closure Program to manage cracking due to SCC of high-strength bolting material. As part of the justification, describe how the program manages the potential exposure of closure bolting to borated water and other potential contaminants that may initiate SCC of the reactor head closure bolting studs and components.

The applicant stated that it will supplement RAI B.2.34-1 response to address request 1 and 2 above. This would include table changes associated with taking an exception to the GALL XI.M3 program.

Davis-Besse project manager (PM) Cliff Custer and the staff's PM Sam Cuadrado de Jesus will determine the due date of this supplemental response. The NRC staff agreed to this action.

**ACTION:** The applicant will supplement RAI B.2.34-1 response to address request 1 and 2 above.

### **Response to RAI 3.1.2.2-2**

#### **Discussion:**

After reviewing the applicant response to RAI 3.1.2.2-2 and previous to the telephone conference call the staff provided the applicant with the following draft followup RAI:

#### **Background**

In the third item of RAI 3.1.2.2-2, the staff requested that the applicant describe the functional groups for the following two components that are addressed in LRA Table 3.1.2-2: (1) core support assembly (CSA) vent valve body, and (2) plenum cylinder reinforcing plate. The staff also requested that if existent, the applicant describe their link relationships (such as primary/expansion link) with other components. In addition, the applicant was requested to describe the inspection method, including the inspection frequency, for the components.

In its response dated July 22, 2011, the applicant stated that in MRP-227, the reactor internals were assigned to one of the following four functional groups: Primary, Expansion, Existing Programs, and No Additional Measures components. The applicant also stated that the link relationships are consistent with that provided in Tables 4-1 and 4-4 of MRP-227, Revision 0. The applicant further stated that the inspection frequency and method for the primary and expansion components are provided in Tables 4-1 and 4-4 of MRP-227, Revision 0. In addition, the revised LRA Table 3.1.2-2 in response to RAI 3.1.2.2-2 does not include an AMR item to manage reduction in fracture toughness of the CASS CSA vent valve body and plenum cylinder reinforcing plate.

### **Issue**

The staff noted that MRP-227 Tables 4-1 and 4-4 referenced in the applicant's response do not clearly address information regarding: (1) the functional groups, (2) the link relationships, or (3) the inspection method, including the frequency, specified for the CSA vent valve body and plenum cylinder reinforcing plate. In addition, the revised LRA Table 3.1.2-2 does not address reduction in fracture toughness of these CASS components. The staff also found a need to clarify whether or not the applicant's aging management for these components is based on applicant's plant-specific existing inspections (for example, inspections per American Society of Mechanical Engineers (ASME) Code Section XI requirements or Technical Specifications).

### **Request**

Provide the information regarding: (1) the functional groups, (2) the link relationships (if existent) and (3) the inspection method including the frequency for the CSA vent valve body and plenum cylinder reinforcing plate made of CASS.

As part of the response, clarify whether or not the applicant's aging management for reduction in fracture toughness of these CASS components is based on applicant's plant-specific existing inspections (for example, inspections per ASME Code Section XI requirements or Technical Specifications). In addition, describe the applicant's operating experience in terms of the occurrence of cracking or reduction in fracture toughness of these components.

The staff indicated that the applicant did not clearly address the requested information associated with the CSA vent valve body and plenum cylinder reinforcing plate, item number 3 of RAI 3.1.2.2-2. In response the applicant stated that these components were Category A components and were screened out as not requiring aging management (MRP-227, Revision 0 and MRP-189, Revision 1) and therefore, were not included in the revised LRA Table 3.1.2-2 submitted as part of the response to item number 2 of RAI 3.1.2.2-2. However, the staff stated that it still desires a response to the requested information associated with the CSA vent valve body and plenum cylinder reinforcing plate. The applicant stated that the response to RAI 3.1.2.2-2 (item number 3) will be revised to address the above requested information. The staff and the applicant also agreed to schedule an additional telephone conference call for Thursday, August 4, 2011, to further discuss this topic.

**ACTION:** The staff and the applicant will hold another telephone conference call on August 4, 2011, to further discuss this topic.

SUBJECT: Summary of Telephone Conference Call conducted on August 2, 2011

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PCooper

BHarris

SCuadrado

EMiller

MMahoney

DMcIntyre, OPA

TRiley, OCA

BHarris, OGC

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FACILITY: Davis-Besse Nuclear Power Station

SUBJECT: SUMMARY OF TELEPHONE CONFERENCE CALL HELD ON AUGUST 2, 2011, 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)

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The applicant had an opportunity to comment on this summary.

**/RA/**

Samuel Cuadrado de Jesús, Project Manager  
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Division of License Renewal  
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Docket No. 50-346

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OFFICE	LA:RPB1:DLR	PM:RPB1:DLR	BC:RPB1:DLR
NAME	YEdmonds	S Cuadrado de Jesús	D Morey
DATE	02 / 24 /12	02 / 27 /12	02 / 27 /12

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