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

September 12, 2011

LICENSEE: FirstEnergy Nuclear Operating Co.

FACILITY: Davis-Besse Nuclear Power Station

SUBJECT: SUMMARY OF TELEPHONE CONFERENCE CALL HELD ON AUGUST 4, 2011, BETWEEN THE U.S NUCLEAR REGULATORY COMMISSION AND FIRSTENERGY NUCLEAR OPERATING CO., 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 Co., held a telephone conference call on August 4, 2011, to discuss and clarify the staff's requests for additional information (RAIs) concerning the Davis-Besse Nuclear Power Station license renewal application. The telephone conference call was useful in clarifying the intent of the staff's RAIs.

Enclosure 1 provides a listing of the participants and Enclosure 2 contains a listing of the RAIs discussed with the applicant, including a brief description on the status of the items.

The applicant had an opportunity to comment on this summary

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

Docket No. 50-346

Enclosures:
As stated

cc w/encls: Listserv

TELEPHONE CONFERENCE CALL
DAVIS-BESSE NUCLEAR POWER STATION
LICENSE RENEWAL APPLICATION
LIST OF PARTICIPANTS

AUGUST 4, 2011

| PARTICIPANTS: | AFFILIATIONS: |
|---|---|
| Samuel Cuadrado de Jesús | U.S. Nuclear Regulatory Commission (NRC) |
| Seung Min | NRC |
| James Medoff | NRC |
| Michael Mahoney | NRC |
| Elizabeth Trillo | Center for Nuclear Waste Regulatory Analyses (CNWRA) |
| Cliff Custer | FirstEnergy Nuclear Operating Company (FENOC) |
| Steven Dort | FENOC |
| Larry Hinkle | FENOC |
| John Hartigan | FENOC |
| Kathy Nesser | FENOC |

ENCLOSURE 1

SUMMARY OF MEETING ON DRAFT REQUESTS FOR
ADDITIONAL INFORMATION FOR DAVIS-BESSE NUCLEAR POWER STATION
LICENSE RENEWAL APPLICATION

AUGUST 4, 2011

The U.S. Nuclear Regulatory Commission (NRC or the staff) and representatives of FirstEnergy Nuclear Operating Company (the applicant) held a telephone conference call on August 4, 2011, to discuss and clarify the following requests for additional information (RAIs) concerning the license renewal application (LRA).

**Draft RAI 4.3.2.3.2-1 - (Supplement)**

Background:

By letter dated June 22, 2011, the applicant responded to RAI 4.1-1 regarding cumulative usage factor (CUF) or $I_t$ fatigue analyses for Class 1 valves. In its response to RAI 4.1-1, Request 1, Part A, the applicant identified 12 large bore Class 1 valves (i.e., valves with nominal pipe sizes in excess of 4-inches NPS) that should have received CUF or $I_t$ fatigue analyses in accordance with the design codes (i.e., 1971 or more recent Editions of the American Society of Mechanical Engineers (ASME) Code Section III, or the 1968 Edition of the Draft ASME Pump and Valve Code for Nuclear Power Plants). The applicant provided Commitment No. 46 to complete the following, prior to April 22, 2015:

> FENOC commits to perform a fatigue evaluation in accordance with the requirements of the ASME Code of record for the Davis-Besse Class 1 valves that are greater than 4 inches nominal pipe size. The applicable valve identification numbers are CF28, CF29, CF30, CF31, DH76, DH77, DH11, DH12, DH1A, DH1B, DH21, and DH23.

LRA Section 4.3.2.3.2, as amended by letter dated June 22, 2011, states that the fatigue analyses for these 12 referenced large bore Class 1 valves are as TLAAs and are dispositioned in accordance with Title 10 of the *Code of Federal Regulations* 54.21(c)(1)(iii), that the effects of fatigue on Class 1 valves greater than 4 inches diameter nominal pipe size will be managed for the period of extended operation by the Fatigue Monitoring Program. LRA Section 4.3.2.3.2 also states that the issue with the missing CUF or $I_t$ calculations for the 12 referenced large bore Class 1 valves has been entered into the applicant's Corrective Actions Program.

Issue:

The information provided by the applicant in the letter dated June 22, 2011, did not provide information regarding whether the applicant had any ASME Code Section III NB-3222.4(d) fatigue waiver assessments (or equivalent waiver assessments permitted by the 1968 Draft ASME Pump and Valve Code) for the 12 large bore Class 1 valves referenced in Commitment No. 46. Therefore, the staff requests additional information regarding whether fatigue calculations are required for these valves.

The staff is concerned that without the CUF, $I_t$ analyses, an appropriate fatigue waiver, or exemption for these 12 large bore Class 1 valves, the staff would not be able to evaluate whether the aging effects will be appropriately managed by the commitment.

Request:

Provide justification for not having the analyses for staff review as part of the LRA, or provide your appropriate fatigue waiver or fatigue exemption bases for not having such analyses.

**Discussion:** The staff began the teleconference by questioning why the applicant chose the completion date of April 22, 2015, for Commitment No. 46 in response to RAI 4.1-1 regarding Class 1 valves. The staff further stated that this date may not be acceptable because it could possibly be part of Davis-Besse's current licensing basis (CLB). The applicant stated that the above issue has been entered into the Corrective Action Program (CR 11-97852) and that it's having difficulty locating all of the records and has therefore been in contact with the valve vendor (Velan) in Canada for assistance.

The staff questioned how long, in terms of completion time, would it take to do a fatigue analysis of the Class 1 valves. The applicant stated that it is no short-term task and it could take 6 to12 months to complete.

As this is a CLB issue, the staff stated that NRC's Division of Operating Reactor Licensing (DORL) and Region III staff will contact the plant to determine an acceptable time frame to complete the fatigue analyses. The applicant stated that it would update the implementation date of License Renewal commitment number 46 based on the outcome of discussions between the Region, DORL and the plant. The staff agreed and will be in contact with the applicant once the issue is resolved. RAI 4.3.2.3.2-1 - (Supplement) will be issued.

**Draft RAI 3.1.2.2-3:** The objective was to continue the previous discussion (8/2/11 Teleconference) on core support assembly (CSA) vent valve body and plenum cylinder reinforcing plate made of CASS (DB Response to RAIs 3.1.2.2-1 and RAI 3.1.2.2-2).

Background:

In Request 3 of RAI 3.1.2.2-2 issued by letter dated June 21, 2011, 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) 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 and the technical basis for the applicant's aging management methods.

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, Rev. 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, Rev. 0. In comparison, 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 loss of fracture toughness of the CASS CSA vent valve body and plenum cylinder reinforcing plate.

In its review, the staff noted that Generic Aging Lessons Learned (GALL) Report, Rev. 2, item IV.B4.RP-382 recommends GALL AMP XI.M1, "ASME Section XI Inservice Inspection, Subsections IWB, IWC, and IWD," to manage cracking or loss of material due to wear of core support structure components; however, the LRA does not address this item. The staff also noted that Section 5.4.4 of the applicant's Technical Specifications requires that it should be verified by visual inspection every 24 months that the vent valve body exhibits no abnormal degradation. In addition, the staff noted that Section 3.2.3, Table 3-2 and Section 4 of Topical Report BAW-2248A, "Demonstration of the Management of Aging Effects for the Reactor Vessel Internals," indicate that reduction of fracture toughness due to thermal aging embrittlement is applicable to reactor vessel internal vent valve bodies.

In its review, the staff also noted that the revised LRA Table 3.1.2-2 submitted by letter dated July 22, 2011, does not address the following GALL Report Rev. 2 items: (1) items IV.B4.RP-236 and IV.B4.RP-237 for the components with no additional measures and (2) items IV.B4.RP-238 and IV.B4.RP-239 for the inaccessible locations of the reactor vessel internals.

Issue:

In its response to RAI 3.1.2.2-2, the applicant indicated that the applicant's aging management methods for the plenum cylinder reinforcing plate and vent valve body are described in MRP-227 Tables 4-1 and 4-4. However, 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 in response to RAI 3.1.2.2-2 does not address an AMR line item to manage loss of fracture toughness of these CASS components.

In its review, the staff also found a need to clarify the following items: (1) why LRA Table 3.1.2-2 does not address GALL Report, Rev. 2, items IV.B4.RP-382, IV.B4.RP-236, IV.B4.RP-237, IV.B4.RP-238 and IV.B4.RP-239, (2) whether or not GALL Report, Rev. 2, item IV.B4.RP-382 is applicable to the plenum cylinder reinforcing plate and vent valve body, and (3) why LRA Table 3.1.2-2 does not address an AMR item for aging management of loss of fracture toughness of the vent valve body even though applicant's Technical Specifications require visual inspections of the component to ensure no abnormal degradation and Topical Report BAW-2248A indicates that reduction of fracture toughness due to thermal aging embrittlement is applicable to reactor vessel internal vent valve bodies.

Request:

1. Provide the justification as to why LRA Table 3.1.2-2 does not address the following GALL Report items for the components with no additional measures and inaccessible areas: GALL Report items IV.B4.RP-236, IV.B4.RP-237, IV.B4.RP-238 and IV.B4.RP-239

In addition, describe the applicant's operating experience to clarify whether or not the accessible areas of the applicant's Primary and Expansion components have indicated aging effects that need management.

2. Provide the justification as to why LRA Table 3.1.2-2 does not address GALL Report, Rev. 2, item IV.B4.RP-382 that recommends GALL AMP XI.M1, "ASME Section XI Inservice Inspection, Subsections IWB, IWC, and IWD," to manage cracking or loss of material of core support structure. In addition, clarify whether or not this item for the core support structure is applicable to the plenum cylinder reinforcing plate and vent valve body.

3. Provide the justification as to why LRA Table 3.1.2-2 does not address an AMR item to manage loss of fracture toughness of the CASS vent valve body even though the applicant's Technical Specifications require visual inspections of the component to ensure no abnormal degradation and Topical Report BAW-2248A indicates that reduction of facture toughness is applicable to the internal valve bodies.

4. Provide the information regarding (1) the functional groups, (2) the link relationships (if existent) and (3) the inspection method including the frequency used to manage loss of fracture toughness of the CSA vent valve body and plenum cylinder reinforcing plate. As part of the response, provide the technical basis to demonstrate that these applicant's aging management methods are adequate to manage loss of fracture toughness of the components.

   If the functional group of the component is Existing Programs or No Additional Measures group, provide the method and frequency of the existing inspections specified for the CASS components.

**Discussion:** The applicant stated that they reviewed the supplemental Draft RAI 3.1.2.2-3 prior to the teleconference and that the questions were understood.

The staff will formally issue RAI 3.1.2.2-3. The NRC Project Manager and the applicant's Project Manager will discuss a submittal date for the issued RAI.

**Additional Discussion on Reactor Vessel Internals**

The staff also stated that information on WCAP 17096, which is prepared for all pressurized water reactor plants, was provided by the NRC and that there are elements within the WCAP that actually go beyond NUREG-1801, Rev. 2. WCAP 17096 is being reviewed by the NRC and many RAIs are pending. In addition, the staff stated that program elements may change due to MRP-227's safety evaluation report (SER) and that GALL Rev. 2, Section XI.16A (Reactor Vessel Internals AMP) needs to be updated based on the SER. An interim staff guidance (ISG) is being prepared to address this issue.

The applicant stated that they will revise the Reactor Vessel Internals AMP for consistency with GALL Rev. 2 and MRP-227 SER action items. The applicant stated that if changes are necessary at a later date due to the ISG or additional RAIs, the Reactor Vessel Internals AMP would be revised accordingly and resubmitted.

September 12, 2012

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FACILITY: Davis-Besse Nuclear Power Station

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The applicant had an opportunity to comment on this summary.

***/RA/***

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

Docket No. 50-346

Enclosures:
As stated

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Letter to FENOC from Samuel Cuadrado de Jesus dated September 12, 2011

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