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

May 15, 2012

LICENSEE: FirstEnergy Nuclear Operating Company

FACILITY: Davis-Besse Nuclear Power Station

SUBJECT: SUMMARY OF TELEPHONE CONFERENCE CALL HELD ON JULY 19, 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 July 19, 2011, to discuss and clarify the applicant's responses to the staff's requests for additional information (RAIs) concerning the Davis-Besse, license renewal application.

Enclosure 1 provides a listing of the participants and Enclosure 2 contains a description of the RAI responses and 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

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SUMMARY OF TELEPHONE CONFERENCE CALL
DAVIS-BESSE
LICENSE RENEWAL APPLICATION

LIST OF PARTICIPANTS
July 19, 2011

PARTICIPANTS	AFFILIATIONS
Samuel Cuadrado de Jesús	U.S. Nuclear Regulatory Commission (NRC)
Ata Istar	NRC
Seung Min	NRC
Todd Mintz	Center for Nuclear Waste Regulatory Analyses
Cliff Custer	FirstEnergy Nuclear Operating Company (FENOC)
Steve Dort	FENOC
Don Kosloff	FENOC
Trent Henline	FENOC
Allen McAllister	FENOC
Steve Osting	FENOC
Mark Swain	FENOC
Bob Smith	FENOC

ENCLOSURE 1

SUMMARY OF TELEPHONE CONFERENCE CALL
DAVIS-BESSE
LICENSE RENEWAL APPLICATION
July 19, 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 July 19, 2011, to discuss and clarify the following responses to requests for additional information (RAIs) concerning the license renewal application (LRA).

RAI B.2.1-2

The staff wanted to clarify the intent of RAI B.2.1-2 which stated the following:

Background:

The applicant responded to RAI B.2.1-1 by proposing to revise Subsection 2.1.2 of the Davis-Besse Nuclear Power Station Surveillance Test Procedure DB-PF-03009, Revision 06, "Containment Vessel and Shielding Building Visual Inspection." Revised Subsection 2.1.2 shall state "Personnel who performed general visual examinations of the exterior surface of the containment vessel and the interior and exterior surfaces of the shielding building shall meet the requirements for a general visual examiner in accordance with Nuclear Operating Procedure NOP-CC-5708, Written Practice for the Qualification and Certification of Nondestructive Examination Personnel."

Issue:

Element 5 "Detection of Aging Effects" in GALL AMP XI.S4 recommends the implementation of periodic in-service examinations for the containment structures by applying the requirements of subsections in ASME Section XI. The associated Subsection IWE-3510.1 of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code), Section XI (1995), requires that "the general Visual Examination shall be performed by, or under the direction of, a Registered Professional Engineer or other individual, knowledgeable in the requirements for design, in-service inspections, and testing of Class MC and metallic liners of Class CC components."

Request:

To comply with the ASME Code, Section XI requirement, the associated Subsection IWE-3510.1 of ASME Code, Section XI (1995) code requirement must be referenced in the new revision of the Davis-Besse Nuclear Operating Procedure and/or Surveillance Test Procedure.

Discussion:

The applicant stated that, following receipt of the first RAI, procedures DB-PS-3009 (Vessel and Shield Building inspections) and NOP-CC-5708 were revised to identify code references for

examiner qualifications, and that examiners are qualified in accordance with the applicable code. The applicant summarized the procedure requirements, and discussed the difficulty with including specific requirements for Davis-Besse in a procedure that applies to all its plants. The staff stated that the 1995 addenda to the code is more stringent than later versions, which is why it wants the code section identified in the procedures. The applicant noted that NOP-CC-5708, Section 4.2.5, includes sections of the code copied directly into the procedure, and that FENOC is required by law to follow the code. NRC asked for a highlighted copy of the procedures showing the relevant sections.

ACTION: The applicant agreed to send the procedures by e-mail.

Response to RAI 3.5.2.2.1.7-1

Previous to the telephone conference call Draft RAI 3.5.2.2.1.7-2 was provided to the applicant. Draft RAI 3.5.2.2.1.7-2 stated the following:

Background:

By letter dated May 2, 2011, the staff issued RAI 3.5.2.2.1.7-1 requesting that the applicant justify why the water leakage addressed in LRA Section 3.5.2.2.1.10 is not conducive to stress corrosion cracking of the stainless steel penetration sleeves and bellows. In its response dated June 3, 2011, the applicant stated that the below-grade leakage is due to a recurring issue of groundwater intrusion into the annulus between the containment and the shield building and a 2002 condition report identified that the two stainless steel bellows and flanges for the containment emergency sump recirculation valves had a rusty appearance. The applicant also stated that the corrective action directed sampling of the water and repairs to identify the source of the leakage. The applicant further stated that evaluation of the residue on the bellows identified that it contained calcium. In addition, the applicant stated that cracking due to stress corrosion cracking (SCC) is not an applicable aging effect for these bellows because the normal temperature of these components is less than 60 °C (140 °F) and a review of plant operating experience confirmed that no other containment penetration bellows have been affected by groundwater intrusion and that cracking of penetration sleeves or bellows was not identified. In addition, the applicant stated that while cracking of penetration bellows and sleeves is not considered to be an applicable aging effect, these components are inspected by the Inservice Inspection Program – IWE.

The staff also noted that LRA Section 3.5.2.2.1.1 states that the below-grade environment at Davis-Besse is aggressive (chlorides > 500 ppm and sulfates > 1,500 ppm) and sampling results indicated a chloride content maximum value of 2,870 ppm and a sulfate content maximum value of 1,700 ppm.

Issue:

In its review, the staff noted that even though generally speaking SCC is not a significant concern at temperature lower than 140 °F, there is a potential that evaporation of leaked ground water on the surfaces of the components may cause significant contamination with chloride or sulfate ions, which may have an adverse effect on the initiation of SCC

of the components. Therefore, the staff found a need to further confirm whether or not the applicant identifies and performs necessary corrective actions to manage an adverse effect of ground water intrusion on SCC of the containment penetration components when the applicant's operating experience (OE), including OE related to the Inservice Inspection Program – IWE and 10 CFR Part 50, Appendix J Program, indicates ground water intrusion on the containment penetration components.

The staff also found a need to clarify whether or not chloride or sulfate contamination was identified in the applicant's evaluation of the residue on the bellows that are addressed in the applicant's response to RAI 3.5.2.2.1.7-1.

Request:

1. Describe whether or not the evaluation of the residue on the bellows, which are addressed in the applicant's response to RAI 3.5.2.2.1.7-1, indicated the presence of chloride or sulfate contamination on the bellows. If data are available, describe the levels of chlorides and sulfates that were detected in the residue evaluation.

2. Confirm whether or not the applicant identifies and performs necessary corrective actions to manage an adverse effect of ground water intrusion on SCC of the containment penetration components when the applicant's OE, including the OE related to the Inservice Inspection Program – IWE and 10 CFR Part 50, Appendix J Program, indicates groundwater intrusion on the containment penetration components.

   In addition, describe what corrective actions are taken in order to control the adverse environmental effect when the applicant's operating experience indicates ground water intrusion on the components.

Discussion:

Regarding Request 1, the applicant reviewed the condition report and relevant documentation from 2002, and stated that the leakage appeared to be groundwater intrusion due to the calcium residue, and was event-driven. Corrective action was taken to investigate, and the calcium appeared to be the result of calcium sulfate in the water. The two groundwater intrusion events described in the LRA operating experience were in the annulus area and not near any containment penetrations. The current groundwater intrusion is also not near penetrations.

Regarding Request 2, the applicant does not currently have a process for managing groundwater intrusion. Water is sampled where it is found during inspections. It appears that water leakage through walls tends to decrease over time, but it is not clear whether the water leakage has slowed or that it evaporates as it nears the surface, and the followup to that is related to any potential deterioration of any affected components.

The staff stated that it has a better understanding of the issues. The applicant clarified that, after further reading the 2002 condition report and reviewing drawings, it determined that the residue was found on the flange of a vertical bellows. The applicant also stated that although there was no residue on the vertical bellows they appeared to have a rust stain color. The applicant further stated that staining of stainless steel surfaces is typically not cleaned under the Corrective Action Program. Since no source of leakage was identified, the components with residue were cleaned-up and no other corrective actions were taken. To conclude the applicant discussed the categories of corrosion in the Corrective Action Program, which are typically used for categorizing boric acid corrosion events.

The staff understood the applicant's explanation.

ACTION: No followup RAI will be issued.

Response to RAI 3.3.2.18-1

Previous to the telephone conference call the following Draft RAI was provided to the applicant:

Background

By letter dated May 2, 2011, the staff issued RAI 3.3.2.18-1 to address and evaluate the applicant's (OE) described in License Event Report (LER) 1998-002-01: the applicant's OE indicates that the degradation of the resin beads in Purification Demineralizer number 3 resulted in releases of sulfur compounds that caused the extensive pitting of the demineralizer internal screen and the breakthrough of the resin beads to the downstream piping. In its review, the staff noted that a release of sulfur compounds can facilitate SCC in stainless steel components. In RAI 3.3.2.18-1, the staff requested that the applicant describe whether or not the stainless steel components in the makeup and purification system that were previously exposed to sulfur compounds have experienced SCC. In addition, the applicant was requested to justify why cracking due to SCC is not an aging effect requiring management for the stainless steel demineralizer tanks, including internal screens, and filter housing. The staff further requested that if the piping has experienced SCC, the applicant should justify why the One-Time Inspection Program is adequate to manage cracking due to SCC of the piping rather than a program that includes periodic inspections.

In its response dated June 3, 2011, to RAI 3.3.2.18-1 the applicant stated that a review of its OE reveals that the stainless steel components in the makeup and purification system that were previously exposed to sulfur compounds have not experienced SCC. The applicant also explained that stress corrosion cracking is not an aging effect requiring management for stainless steel demineralizer tanks, including internal screen, and filter housing because the temperature in this system under normal operations is below 120 °F, which is less than the SCC threshold temperature in treated water.

The applicant further stated that the LER did not identify cracking due to SCC as an apparent cause and as corrective actions, the letdown flow path was flushed and a resin control program was instituted to prevent recurrence.

Request:

Describe what activities are performed in the resin control program as corrective actions to prevent the reoccurrence of demineralizer resin breakthrough to the downstream piping of the demineralizers. In addition, describe whether or not the plant-specific OE indicates that the resin control program has been effective to prevent resin breakthrough to the downstream piping in the makeup and purification system.

Discussion:

The applicant stated that it reviewed the causes and corrective actions from LER 1998-002-01. Radiation levels of 106 rads or higher causes breakdown of and damage to the resins. The number 3 demineralizer bed was over 10 years old, and had sat idle for long periods of time. The resin began to breakdown due to high radiation levels from the buildup of isotopes. The resin breakdown produced an acidic environment. Had the demineralizer been placed in service periodically, this action would have buffered the water. The Resin Control Program ensures the operation of the demineralizers is controlled to avoid resin degradation concerns, by tracking performance and in-service time of the demineralizers in the primary systems to ensure the demineralizers are changed-out prior to any resin degradation. The Resin Control Program addresses the root cause of the number 3 demineralizer resin degradation. In the past, each demineralizer could perform lithium removal for an entire 18-month fuel cycle. However, the change to a 2-year fuel cycle changed the method of operation such that one demineralizer is in-service and the other two are used for lithium removal alternately. Therefore, the demineralizers no longer sit idle for extended periods of time. Also, by procedure, the resins are changed-out every four years. Monitoring actions and responsibility for the operation and change-out of the demineralizers belongs to Chemistry and Operations. There has been no recurrence of the event.

The staff understood the applicant's explanation.

ACTION: No followup RAI will be issued.

Memorandum to FirstEnergy Nuclear Operating Company from Samuel Cuadrado de Jesus dated May 15, 2012.

SUBJECT: Summary of Telephone Conference Call conducted on July 19, 2011

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/RA/
Samuel Cuadrado de Jesús, Project Manager
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Docket No. 50-346

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