

## Davis-BesseNPEm Resource

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**From:** CuadradoDeJesus, Samuel  
**Sent:** Tuesday, July 12, 2011 10:12 AM  
**To:** 'custerc@firstenergycorp.com'  
**Cc:** 'dorts@firstenergycorp.com'  
**Subject:** FW: OAR - Request For Additional Information For The Review Of The Davis-Besse Nuclear Power Station (TAC No. ME4640)  
**Attachments:** ML11189A043.pdf

Cliff:

We just issued the attached RAI Letter.

Regards

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**From:** Freeman, Stanley  
**Sent:** Tuesday, July 12, 2011 9:56 AM  
**To:** CuadradoDeJesus, Samuel  
**Cc:** Figueroa, Sandra; Morey, Dennis; RidsNrrDlr Resource; RidsNrrDlrRapb Resource; RidsNrrDlrRarb Resource; RidsNrrDlrRasb Resource; RidsNrrDlrRerb Resource; RidsNrrDlrRpb1 Resource; RidsNrrDlrRpb2 Resource; RidsNrrDlrRpob Resource; RidsNrrDciCvib Resource; RidsNrrDciCsgb Resource; RidsNrrDciCpnb Resource; RidsNrrDraAfpb Resource; RidsNrrDraApla Resource; RidsNrrDeEmcb Resource; RidsNrrDeEeeb Resource; RidsNrrDssSrxb Resource; RidsNrrDssSbpb Resource; RidsNrrDssScvb Resource; RidsOgcMailCenter Resource; Cooper, Paula; Harris, Brian; Mahoney, Michael  
**Subject:** OAR - Request For Additional Information For The Review Of The Davis-Besse Nuclear Power Station (TAC No. ME4640)

Enclosed is the electronic distribution of letter:

**DATE:** July 12, 2011

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

**TO:** Barry S. Allen

**FROM:** Samuel Cuadrado de Jesus

**ADAMS Accession No.:** ML11189A043

*Stan*

Stanley Z. Freeman II  
Branch Secretary  
[Stanley.Freeman@nrc.gov](mailto:Stanley.Freeman@nrc.gov)  
301-415-3169  
301-415-2300 Fax

**Hearing Identifier:** Davis\_BesseLicenseRenewal\_Saf\_NonPublic  
**Email Number:** 2907

**Mail Envelope Properties** (Samuel.CuadradoDeJesus@nrc.gov20110712101100)

**Subject:** FW: OAR - Request For Additional Information For The Review Of The Davis-Besse Nuclear Power Station (TAC No. ME4640)  
**Sent Date:** 7/12/2011 10:11:31 AM  
**Received Date:** 7/12/2011 10:11:00 AM  
**From:** CuadradoDeJesus, Samuel

**Created By:** Samuel.CuadradoDeJesus@nrc.gov

**Recipients:**  
"dorts@firstenergycorp.com" <dorts@firstenergycorp.com>  
Tracking Status: None  
"custerc@firstenergycorp.com" <custerc@firstenergycorp.com>  
Tracking Status: None

**Post Office:**

<b>Files</b>	<b>Size</b>	<b>Date &amp; Time</b>
MESSAGE	1393	7/12/2011 10:11:00 AM
ML11189A043.pdf	342616	

**Options**  
**Priority:** Standard  
**Return Notification:** No  
**Reply Requested:** No  
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**Expiration Date:**  
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UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

July 12, 2011

Barry S. Allen, 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. Allen:

By letter dated August 27, 2010, FirstEnergy Nuclear Operating Company, submitted an application pursuant to Title 10 of the *Code of Federal Regulation* Part 54 for renewal of Operating License 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.CuadradoDeJesus@nrc.gov.

Sincerely,

A handwritten signature in black ink, appearing to read "S. Cuadrado de Jesús", written in a cursive style.

Samuel Cuadrado de Jesús, Project Manager  
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

**RAI 3.2.2.2.3.6-2**

Background:

By letter dated May 2, 2011, the U.S. Nuclear Regulatory Commission (NRC or the staff) issued Request for Additional Information (RAI) 3.2.2.2.3.6-1 requesting that FirstEnergy Nuclear Operating Company (the applicant) provide justification for its use of the One-Time Inspection Program for managing loss of material due to pitting and crevice corrosion of the internal surfaces of stainless steel piping, piping components, piping elements, and tanks exposed to condensation. In its response dated June 3, 2011, the applicant stated that Amendment No. 7 to the license renewal application (LRA) changed the aging management program (AMP) used for the condensation environment to the Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Program. The applicant also stated that the One-Time Inspection Program will still be used to verify the effectiveness of the AMPs credited for managing aging effects above and below the air/water interface.

The staff noted that, for the 13 aging management review (AMR) items that were the subject of RAI 3.2.2.2.3.6-1 (items that reference LRA Table 3.2.1, item 3.2.1-08), the applicant:

- Changed the AMP to the Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Program for five of the items
- Retained the One-Time Inspection Program for two of the items (LRA Table 3.3.2-4, item 158 and Table 3.3.2-5, item 59), citing plant-specific note 0313, which states that the One-Time Inspection Program will confirm the absence of aging effects, or that aging is acting slowly, at the air-water interface
- Did not specifically address the remaining six items

Issue:

The staff agrees with the applicant's amended position which manages stainless steel components exposed to condensation for loss of material due to pitting and crevice corrosion with the Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Program. However, the staff has identified the following issues:

1. For the two items for which the One-Time Inspection Program was retained, the applicant does not age manage the internal surfaces above the air/water interface (i.e., there are no AMR items for the upper portions of the associated tanks). The staff noted that these items originally addressed the upper portions of the tank internal surfaces exposed to condensation, but Amendment No. 7 changed these items to specifically age manage the air/water interface.

ENCLOSURE

2. For the six items that Amendment No. 7 did not address, it is unclear to the staff how the applicant will manage loss of material due to pitting and crevice corrosion. These items include components in the containment spray system, core flooding system, decay heat removal and LPI system, component cooling water system, and demineralized water storage system.

Request:

1. State how loss of material will be managed for the internal surfaces of LRA Table 3.3.2-4, item 158 and Table 3.3.2-5, item 59 above the air-water interface and subject to condensation.
2. State how loss of material will be managed for those items that reference LRA Table 3.2.1, item 3.2.1-08 but were not addressed in Amendment No. 7.

**RAI 3.3.1.49-2**

Background:

By letter dated May 2, 2011, the staff issued RAI 3.3.1.49-1 requesting that the applicant state why loss of material due to microbiologically influenced corrosion (MIC) is not an applicable aging effect for stainless steel heat exchanger components exposed to closed cycle cooling water. In its response dated June 3, 2011, the applicant stated that, because Davis-Besse has no plant-specific operating experience of MIC in its closed cooling water environments, MIC is not an aging effect requiring management.

The EPRI Closed Cooling Water Chemistry Guideline, Revision 1 (1007820) states that MIC is a significant issue in closed cooling water systems. EPRI 1007820 and the EPRI Non-Class 1 Mechanical Implementation Guideline and Mechanical Tools, Revision 4 (1010639) also state that stagnant loops in closed cooling water systems can accumulate microorganisms and their nutrients, and water chemistry in these areas may be difficult to maintain.

SRP-LR Section A.1.2.1, "Applicable Aging Effects," states that an aging effect should be identified as applicable for license renewal even if there is a prevention or mitigation program associated with that aging effect. GALL AMP XI.M21A "Closed Treated Water Systems" states that, because the control of water chemistry may not be fully effective in mitigating aging effects, visual inspections are conducted.

Issue:

The staff noted that the lack of plant-specific operating experience associated with MIC may be attributable to water chemistry controls and/or the absence of inspections to specifically identify this aging mechanism in areas most prone to MIC (e.g., stagnant loops). The staff also noted that, although water chemistry controls may be responsible for the absence of MIC, the aging effect is still applicable and inspections are appropriate to ensure that the control of water chemistry remains fully effective.

Request:

Include monitoring for MIC in the Closed Cooling Water Chemistry Program to ensure that the control of water chemistry remains fully effective at preventing this aging mechanism or provide technical justification for why MIC is not credible at Davis-Besse, regardless of water chemistry controls.

**RAI 3.3.2.2.5-2**

Background:

In its response to RAI 3.3.2.2.5-1, dated May 24, 2011, regarding aging management of elastomeric components the applicant developed a new plant-specific Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Program; however, the applicant did not revise the External Surfaces Monitoring Program to include physical manipulation of the external surfaces of elastomers. The amended LRA contains elastomeric components exposed to air-indoor uncontrolled (external) environment in Tables 3.2.2-1 and 3.3.2-1, 6, 12, 13, 14, 15, 21, and 30.

The GALL Report Revision 2, recommends that elastomeric materials exposed to air-indoor uncontrolled (external) be managed for hardening and loss of strength by GALL AMP XI.M36, "External Surfaces Monitoring of Mechanical Components." GALL AMP XI.M36 recommends that elastomeric materials be physically manipulated during inspections to detect hardening and loss of strength and that the manipulation should include 10 percent of the available surface area.

The GALL Report Revision 2 recommends that elastomeric materials exposed to raw water be managed by GALL AMP XI.M20, "Open-Cycle Cooling Water System" which states that elastomeric components be periodically examined consistent with the examinations described in GALL AMP XI.M38. The staff noted that the applicant revised its LRA AMR line items addressing elastomeric materials exposed to raw water to be managed for hardening and loss of strength by a newly-developed plant-specific Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Program.

Issue:

The staff agrees with the applicant's position that elastomeric components exposed to an air-indoor uncontrolled (internal) environment be managed by the Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Program for hardening and loss of strength. However, for elastomeric components exposed to an air-indoor uncontrolled (external environment), the GALL Report recommends that the components be periodically inspected using a physical manipulation method. In addition, the applicant should state the minimum available surface area that will be manipulated during inspections when utilizing the External Surfaces Monitoring Program.

The staff does not agree that elastomeric components exposed to raw water can be adequately managed for hardening and loss of strength by the plant-specific Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Program because it is opportunistic and therefore may not ensure periodic inspections of elastomeric material are conducted. The staff believes periodic inspections are necessary due to the changing nature of raw water environments.

Request:

- a) Revise the External Surfaces Monitoring Program to include physical manipulation of elastomeric materials and/or:
  1. State how it would be effective at determining if hardening or loss of strength has occurred in the absence of physical manipulation, or
  2. Propose a periodic inspection program that will physically manipulate elastomeric components
- b) Propose a periodic inspection program which includes physical manipulation of elastomeric components exposed to raw water, or state why periodic inspections are not necessary to adequately detect hardening and loss of strength in these materials.
- c) State the minimum available surface area that will be manipulated during inspections of elastomeric materials. If the minimum available surface area that will be manipulated during inspections of elastomeric materials is less than 10 percent, state the basis for how the inspection will sufficiently identify the hardening and loss of strength aging effects

July 12, 2011

Barry S. Allen, Vice President  
Davis-Besse Nuclear Power Station  
FirstEnergy Nuclear Operating Company  
5501 North State Route 2  
Oak Harbor, OH 43449

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DAVIS-BESSE NUCLEAR POWER STATION (TAC NO. ME4640)

Dear Mr. Allen:

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Sincerely,

/RA/

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

Docket No. 50-346

Enclosure:  
As stated

cc w/encl: Listserv

DISTRIBUTION:  
See next page

ADAMS Accession No.: ML11189A043

\*concurrence via email

OFFICE:	LA:DLR/RPB1*	PM: DLR/RPB1	BC: DLR/RPB1	LA: DLR/RPB1	PM: DLR/RPB1
NAME:	SFiguroa	SCuadrado	DMorey	SFiguroa	SCuadrado
DATE:	07/08/2011	07/11/2011	07/11/2011	07/12/2011	07/12/2011

OFFICIAL RECORD COPY



Letter to Barry S. Allen from Samuel Cuadrado de Jesus dated July 12, 2011

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

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P. Cooper

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