



FirstEnergy Nuclear Operating Company

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May 20, 2015
L-15-166

10 CFR 54

ATTN: Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

SUBJECT:

Davis-Besse Nuclear Power Station, Unit No. 1
Docket No. 50-346, License Number NPF-3
Supplemental Information for the Review of the Davis-Besse Nuclear Power Station,
Unit No. 1, Reactor Vessel Internals Inspection Plan (TAC No. ME4640) and
License Renewal Application Amendment No. 56

By letter dated August 27, 2010 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML102450565), FirstEnergy Nuclear Operating Company (FENOC) submitted an application pursuant to Title 10 of the *Code of Federal Regulations*, Part 54 for renewal of Operating License NPF-3 for the Davis-Besse Nuclear Power Station, Unit No. 1 (Davis-Besse). By letter dated April 21, 2015 (ML15113B132, ML15113B133, and ML15113B134), FENOC submitted the Davis-Besse Reactor Vessel Internals Inspection Plan. Based on a telephone conference call held with the Nuclear Regulatory Commission (NRC) on May 6, 2015, to discuss the Inspection Plan details, attached is supplemental information to support completion of the NRC review of the Plan.


Attachment 1 provides a description of the Davis-Besse Reactor Vessel Internals Inspection Plan supplemental information. Attachment 2 identifies three Regulatory Commitments that are superseded by License Renewal Future Commitments. The Enclosure provides Amendment No. 56 to the Davis-Besse LRA.

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There are no regulatory commitments contained in this letter. If there are any questions or if additional information is required, please contact Mr. Clifford I. Custer, Fleet License Renewal Project Manager, at 724-682-7139.

I declare under penalty of perjury that the foregoing is true and correct. Executed on May 20th, 2015.

Sincerely,



Raymond A. Lieb

Attachments:

1. Davis-Besse Reactor Vessel Internals Inspection Plan Supplemental Information
2. Deleted Regulatory Commitments

Enclosure:

Amendment No. 56 to the Davis-Besse License Renewal Application

cc: NRC DLR Project Manager
NRC Region III Administrator

cc: w/o Attachments or Enclosure
NRC DLR Director
NRR DORL Project Manager
NRC Resident Inspector
Utility Radiological Safety Board

Attachment 1
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Davis-Besse Reactor Vessel Internals Inspection Plan
Supplemental Information
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Item 1:

Three Regulatory Commitments were provided by FENOC letter dated April 21, 2015 (ML15113B132, ML15113B133, and ML15113B134). The Commitments are superseded by new License Renewal Future Commitments 52, 53 and 54 as shown in the Enclosure to this letter, Table A-1, Davis-Besse License Renewal Commitments." The Implementation Schedule date for new License Renewal Future Commitment 54 was revised to October 22, 2016, to align with the completion date for the majority of the other License Renewal Future Commitments.

Item 2:

AREVA NP Inc. document number 51-9191898-000, "Reactor Vessel Internals Welds Stress Relief Records Search for the Operating 177-FA B&W Units," dated October 30, 2012, contains the fabrication records supporting Davis-Besse Reactor Vessel Internals Inspection Plan Action Item #4, detailed in FENOC Letter L-15-139 dated April 21, 2015 (ML15113B132, ML15113B133, and ML15113B134), Enclosure B, AREVA NP Report No. ANP-3285 Revision 0, "Confirmation of Stress Relief for the DB-1 Core Support Shield Upper Flange Weld."

Item 3:

To address Davis-Besse Reactor Vessel Internals Inspection Plan Action Item 8, License Renewal Application (LRA) Sections A.1.32 and B.2.32, both titled, "PWR Reactor Vessel Internals Program," are revised to include a new paragraph, as follows:

Locations using replacement bolts, fabricated from Alloy X-750 material, are the upper core barrel (UCB), the lower core barrel (LCB), lower thermal shield (LTS) and surveillance specimen holder tube (SSHT). These replacement bolts have cumulative usage factor analyses that are TLAA's and are managed by the PWR Reactor Vessel Internals Program where volumetric UT examinations are performed on a periodic basis consistent with the program's inspection plan.

See the Enclosure to this letter for the revision to the Davis-Besse LRA.

Attachment 2
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Superseded Regulatory Commitments
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The following list identifies three Regulatory Commitments provided by FENOC letter dated April 21, 2015 (ML15113B132, ML15113B133, and ML15113B134). The Commitments are superseded by License Renewal Future Commitments as shown in the Enclosure to this letter, Table A-1, Davis-Besse License Renewal Commitments.” Therefore, the three Regulatory Commitments are superseded as shown below.

Regulatory Commitment	Due Date
1. In response to MRP-227-A Applicant/Licensee Action Item 6, submit detailed analyses justifying the acceptability of inaccessible and non-inspectable component items (core barrel cylinder including vertical and circumferential seam welds, former plates, external baffle-to-baffle bolts and their locking devices, core barrel-to-former bolts and their locking devices, and internal baffle-to-baffle bolts) for continued operation through the period of extended operation by performing an evaluation or by proposing a schedule for replacement of the component items (see CR 2014-06427).	Within one year of the detection of degradation exceeding the acceptance criteria of the linked MRP-227-A primary component items leading to expansion
2. In response to MRP-227-A Applicant/Licensee Action Item 7, develop and submit a plant-specific analysis to demonstrate that the Incore Monitoring Instrumentation (IMI) guide tube assembly spiders, Control Rod Guide Tube (CRGT) spacer castings, and additional RV Internals component items that may be fabricated from CASS, martensitic stainless steel, or martensitic precipitation-hardened stainless steel materials (e.g., Core Support Shield (CSS) vent valve top and bottom retaining rings) will maintain their functionality during the period of extended operation. The analysis will consider the possible loss of fracture toughness in these component items due to thermal embrittlement (TE) and/or irradiation embrittlement (IE) and may also need	One year prior to the MRP-227-A inspection of the applicable component items

to consider limitations on accessibility for inspection and the resolution/sensitivity of the inspection techniques. The Davis-Besse analysis will be consistent with the licensing basis and the need to maintain the functionality of the component items being evaluated under all licensing basis conditions of operation.	
3. In response to MRP-227-A Applicant/Licensee Action Item 8, update and submit an evaluation for the period of extended operation regarding the effect of irradiation on the mechanical properties and deformation limits of the RV internals that was evaluated for the current term of operation in Appendix E of Topical Report BAW-10008, Part 1, Revision 1 supplemented by DB-1 USAR Appendix 4A.	April 22, 2017

Enclosure

Davis-Besse Nuclear Power Station, Unit No. 1 (Davis-Besse)

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Amendment No. 56 to the
Davis-Besse License Renewal Application

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License Renewal Application
Sections Affected

Section A.1.32

Table A-1

Section B.2.32

The Enclosure identifies the change to the License Renewal Application (LRA) by Affected LRA Section, LRA Page No., and Affected Paragraph and Sentence. The count for the affected paragraph, sentence, bullet, etc. starts at the beginning of the affected Section or at the top of the affected page, as appropriate. Below each section the reason for the change is identified, and the sentence affected is printed in *italics* with deleted text ~~*lined-out*~~ and added text *underlined*.

<u>Affected LRA Section</u>	<u>LRA Page No.</u>	<u>Affected Paragraph and Sentence</u>
A.1.32	Page A-21	New 3rd Paragraph

To address Davis-Besse Reactor Vessel Internals Inspection Plan Action Item 8, LRA Section A.1.32, "PWR Reactor Vessel Internals Program," previously revised by FENOC letter dated March 9, 2012 (ML12094A383), is revised to include a new third paragraph, as follows:

Locations using replacement bolts, fabricated from Alloy X-750 material, are the upper core barrel (UCB), the lower core barrel (LCB), lower thermal shield (LTS) and surveillance specimen holder tube (SSHT). These replacement bolts have cumulative usage factor analyses that are TLAA's and are managed by the PWR Reactor Vessel Internals Program where volumetric UT examinations are performed on a periodic basis consistent with the program's inspection plan.

Affected LRA Section **LRA Page No.** **Affected Paragraph and Sentence**
Table A-1 **A-69** **New Commitments Nos. 52, 53, 54**

FENOC Regulatory Commitments DB-L-15-139-1, -2 and -3 are superseded by three license renewal future commitments, and LRA Table A-1, "Davis-Besse License Renewal Commitments," is revised to read as follows:

<p align="center">Table A-1 Davis-Besse License Renewal Commitments</p>				
Item Number	Commitment	Implementation Schedule	Source	Related LRA Section No./ Comments
<u>52</u>	<u>In response to MRP-227-A Applicant/Licensee Action Item 6, submit for NRC review and approval an evaluation justifying the acceptability of inaccessible and non-inspectable component items (core barrel cylinder including vertical and circumferential seam welds, former plates, external baffle-to-baffle bolts and their locking devices, core barrel-to-former bolts and their locking devices, and internal baffle-to-baffle bolts) for continued operation through the period of extended operation and, if necessary, provide a plan for replacement of the components.</u>	<u>Within one year of the detection of degradation exceeding the acceptance criteria of the linked MRP-227-A primary component items leading to expansion</u>	<u>FENOC Letters L-15-139 and L-15-166</u>	<u>A.1.32</u> <u>B.2.32</u>
<u>53</u>	<u>In response to MRP-227-A Applicant/Licensee Action Item 7, develop and submit for NRC review and approval a plant-specific analysis to demonstrate that the Incore Monitoring Instrumentation (IMI) guide tube assembly spiders, Control Rod Guide Tube</u>	<u>One year prior to the MRP-227-A inspection of the applicable</u>	<u>FENOC Letters L-15-139 and</u>	<u>A.1.32</u> <u>B.2.32</u>

Table A-1
Davis-Besse License Renewal Commitments

Item Number	Commitment	Implementation Schedule	Source	Related LRA Section No./ Comments
	<u>(CRGT) spacer castings, and additional RV Internals component items that may be fabricated from CASS, martensitic stainless steel, or martensitic precipitation-hardened stainless steel materials (e.g., Core Support Shield (CSS) vent valve top and bottom retaining rings) will maintain their functionality during the period of extended operation. The analysis will consider the possible loss of fracture toughness in these component items due to thermal embrittlement (TE) and/or irradiation embrittlement (IE) and may also need to consider limitations on accessibility for inspection and the resolution/sensitivity of the inspection techniques. The Davis-Besse analysis will be consistent with the licensing basis and the need to maintain the functionality of the component items being evaluated under all licensing basis conditions of operation.</u>	<u>component items</u>	<u>L-15-166</u>	
<u>54</u>	<u>In response to MRP-227-A Applicant/Licensee Action Item 8, update and submit for NRC review and approval an evaluation for the period of extended operation regarding the effect of irradiation on the mechanical properties and deformation limits of the RV internals that was evaluated for the current term of operation in Appendix E of Topical Report BAW-10008, Part 1, Revision 1 supplemented by DB-1 USAR Appendix 4A.</u>	<u>October 22, 2016</u>	<u>FENOC Letters L-15-139 and L-15-166</u>	<u>A.1.32</u> <u>B.2.32</u>

<u>Affected LRA Section</u>	<u>LRA Page No.</u>	<u>Affected Paragraph and Sentence</u>
B.2.32	Page B-129	New 3rd paragraph

To address Davis-Besse Reactor Vessel Internals Inspection Plan Action Item 8, LRA Section B.2.32, "PWR Reactor Vessel Internals Program," previously revised by FENOC letter dated March 9, 2012 (ML12094A383), is revised to include a new third paragraph, as follows:

Locations using replacement bolts, fabricated from Alloy X-750 material, are the upper core barrel (UCB), the lower core barrel (LCB), lower thermal shield (LTS) and surveillance specimen holder tube (SSHT). These replacement bolts have cumulative usage factor analyses that are TLAA's and are managed by the PWR Reactor Vessel Internals Program where volumetric UT examinations are performed on a periodic basis consistent with the program's inspection plan.