

Raymond A. Lieb
Vice President, Nuclear419-321-7676
Fax: 419-321-7582April 8, 2015
L-15-120

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
Notification of Completion of License Renewal Commitments Related to the Review of the Davis-Besse Nuclear Power Station, Unit No. 1, License Renewal Application (TAC No. ME4640) and License Renewal Application Amendment No. 55

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). As described in the Safety Evaluation Report Related to the License Renewal of Davis-Besse Nuclear Power Station (ML13248A267), FENOC provided license renewal Commitments 26 and 37 to perform core bores in structural concrete to identify whether the introduction of water into the concrete had adversely impacted the concrete or reinforcing steel.

The actions described in license renewal Commitment 26 have been completed. The actions described in license renewal Commitment 37, Phase 1, have also been completed. The License Renewal Application is revised accordingly.

The Attachment provides the details regarding the closure of the License Renewal Commitments. The Enclosure provides Amendment No. 55 to the Davis-Besse LRA.

Davis-Besse Nuclear Power Station, Unit No. 1
L-15-120
Page 2

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 April 8th, 2015.

Sincerely,



Raymond A. Lieb

Attachment:

Details Regarding Closure of Commitments in the Davis-Besse Nuclear Power Station, Unit No. 1 (Davis-Besse), License Renewal Application (LRA), Appendix A, Table A-1

Enclosure:

Amendment No. 55 to the Davis-Besse License Renewal Application

cc: NRC DLR Project Manager
NRC Region III Administrator

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

Attachment
L-15-120

Details Regarding Closure of Commitments in the
Davis-Besse Nuclear Power Station, Unit No. 1 (Davis-Besse),
License Renewal Application (LRA),
Appendix A, Table A-1
Page 1 of 3

1. LRA Commitment 26 (Aggressive Groundwater In-Leakage)—Closure

License renewal Commitment 26 currently reads:

Obtain and evaluate for degradation a concrete core bore from two representative inaccessible concrete components of an in-scope structure subjected to aggressive groundwater prior to entering the period of extended operation. Based on the results of the initial core bore sample, evaluate the need for collection and evaluation of representative concrete core bore samples at additional locations that may be identified during the period of extended operation as having aggressive groundwater infiltration. Select additional core bore sample locations based on the duration of observed aggressive groundwater infiltration. Document identified concrete or steel degradation in the FENOC Corrective Action Program.

In December 2014, as required by License Renewal Commitment 26, FENOC completed concrete sampling and laboratory testing of two representative core samples obtained from areas exposed to long-term aggressive groundwater intrusion (i.e., from the floor in Room 105 (ECCS Pump Room No. 1) and the wall in Room 246 (East Condenser Pit Area)). To ensure the effect of groundwater intrusion on structural reinforcing steel was understood, FENOC also obtained and examined two representative core bore samples from the same locations that exposed a section of reinforcing bar (rebar).

A concrete testing laboratory assessed the condition of the concrete and steel by visual examination, and by petrographic examination and compressive strength testing of the concrete samples. The core segments were judged to be in good condition, the paste bond to the aggregate was tight, and there was no indication of physical degradation resulting from groundwater intrusion. No evidence of alkali-aggregate reaction was observed in the concrete samples. Compressive strength testing of the core samples showed values above design values. There was no appreciable deterioration of the rebar sample, indicating that no significant loss of cross-section had occurred. Where the concrete was in physical contact with the rebar, the surface did not exhibit any appreciable corrosion. The reinforcement imprint surfaces were covered by superficial oxidation product (rust). FENOC engineering evaluated the laboratory results and determined the results

were satisfactory, and that no aging effects were identified that required entry into the FENOC Corrective Action Program.

Based on the positive laboratory testing results of the core samples and rebar examinations, there is no need for collection and evaluation of additional representative concrete core bore samples at other locations where aggressive groundwater infiltration has been observed. Should the amount of groundwater infiltration increase significantly in areas where groundwater intrusion has been identified, or additional future groundwater infiltration locations be identified, the issue will be entered into and evaluated using the FENOC Corrective Action Program.

Therefore, License Renewal Commitment 26 is considered closed. LRA Table A-1, "Davis-Besse License Renewal Commitments," is revised to address closure of license renewal Commitment 26 activities.

2. LRA Commitment 37 (Spent Fuel Pool Leakage through wall [i.e., into ECCS Pump Room No. 1 wall] and floor [i.e., into ceiling of Room 109])—Phase 1 Closure

License renewal Commitment 37 currently reads:

Perform and evaluate core bores of the ECCS Pump Room No. 1 wall and the Room 109 ceiling.

- The core bores will be deep enough to expose reinforcing bar in the wall and ceiling. The core samples from the core bores will be examined for signs of corrosion or chemical effects of boric acid on the concrete or reinforcing bars. The examination will include a petrographic examination. The reinforcing steel that will be exposed for a visual inspection will have corrosion products collected for testing. Degradation identified from the samples will be entered into the FENOC Corrective Action Program. The core bores will be performed in areas where leakage has been observed in the past.*
- The first set of core bores will be performed prior to the end of 2014 (Phase 1).*
- The second set of core bores will be performed prior to the end of 2020 (Phase 2).*
- Further core bores will be conducted, if warranted, based on the evaluation of the results of the inspection and testing of the core bores or if spent fuel pool leakage through the wall or ceiling recurs after the second set of core bores is performed. If spent fuel pool leakage through another wall or ceiling is identified, then core bores*

will be performed in a manner similar to that stated for the ECCS Pump Room No. 1 wall and the Room 109 ceiling.

In December 2014, as required by License Renewal Commitment 37, Phase 1, FENOC completed concrete sampling and laboratory testing of two representative core samples obtained from areas where spent fuel pool leakage has been observed in the past (i.e., from the wall in Room 105 (ECCS Pump Room No. 1), which is also the wall of the Spent Fuel Pool, and the ceiling in Room 109 (Maintenance Hot Work Area), which is also the floor of the Spent Fuel Pool). To collect potential corrosion products for testing, FENOC also obtained and examined two representative core bore samples from the same locations that exposed a section of reinforcing bar (rebar).

A concrete testing laboratory assessed the condition of the concrete and steel by visual examination, and by petrographic examination and compressive strength testing of the concrete samples. The core samples were judged to be in good condition, the paste bond to the aggregate was tight, and there was no indication of physical degradation resulting from spent fuel pool leakage. No evidence of alkali-aggregate reaction was observed in the concrete samples. Compressive strength testing of the core samples showed values above design values. There was no appreciable deterioration of the rebar sample, indicating that no loss of cross-section had occurred. Where the concrete was in physical contact with the rebar, the surface did not exhibit any appreciable corrosion. The reinforcement imprint surfaces were covered by superficial oxidation product (rust). No boron was detected in the samples. FENOC engineering evaluated the laboratory results and determined the results were satisfactory, and that no aging effects were identified that required entry into the FENOC Corrective Action Program.

LRA Table A-1, "Davis-Besse License Renewal Commitments," is revised to address partial closure of license renewal Commitment 37, specifically, Phase 1 activities.

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

Enclosure

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

Letter L-15-120

**Amendment No. 55 to the
Davis-Besse License Renewal Application**

Page 1 of 4

**License Renewal Application
Sections Affected**

Table A-1

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*.

Affected LRA Section **LRA Page No.** **Affected Paragraph and Sentence**
Table A-1 **Page A-69** **Commitments 26 & 37 Implementation Schedules**

The actions required by license renewal Commitment 26, and Commitment 37, Phase 1, have been completed, and LRA Table A-1, "Davis-Besse License Renewal Commitments," is revised to update the "Implementation Schedule" for these two commitments, as follows:

Table A-1 Davis-Besse License Renewal Commitments				
Item Number	Commitment	Implementation Schedule	Source	Related LRA Section No./ Comments
26	Obtain and evaluate for degradation a concrete core bore from two representative inaccessible concrete components of an in-scope structure subjected to aggressive groundwater prior to entering the period of extended operation. Based on the results of the initial core bore sample, evaluate the need for collection and evaluation of representative concrete core bore samples at additional locations that may be identified during the period of extended operation as having aggressive groundwater infiltration. Select additional core bore sample locations based on the duration of observed aggressive groundwater infiltration. Document identified concrete or steel degradation in the FENOC Corrective Action Program.	<i>Prior to December 31, 2014</i> <u>COMPLETE</u>	<i>FENOC Letters L-11-153, L-11-237, and L-11-292 and <u>L-15-120</u></i>	Responses to NRC RAIs B.2.39-3 from NRC Letter dated April 5, 2011, B.2.39-11 from NRC Letter dated July 21, 2011, and Supplemental RAI B.2.39-11 from telecon

**Table A-1
Davis-Besse License Renewal Commitments**

Item Number	Commitment	Implementation Schedule	Source	Related LRA Section No./ Comments
				held with the NRC on September 13, 2011
37	<p>Perform and evaluate core bores of the ECCS Pump Room No. 1 wall and the Room 109 ceiling.</p> <ul style="list-style-type: none"> The core bores will be deep enough to expose reinforcing bar in the wall and ceiling. The core samples from the core bores will be examined for signs of corrosion or chemical effects of boric acid on the concrete or reinforcing bars. The examination will include a petrographic examination. The reinforcing steel that will be exposed for a visual inspection will have corrosion products collected for testing. Degradation identified from the samples will be entered into the FENOC Corrective Action Program. The core bores will be performed in areas where leakage has been observed in the past. The first set of core bores will be performed prior to the end of 2014 (Phase 1). The second set of core bores will be performed prior to the end of 2020 (Phase 2). Further core bores will be conducted, if warranted, based on the evaluation of the results of the inspection and testing of the core bores or if spent fuel pool leakage through the wall or ceiling 	<p><i>Phase 1 prior to December 31, 2014</i></p> <p><u>COMPLETE</u></p> <p>and</p> <p>Phase 2 prior to December 31, 2020</p>	<p>FENOC Letters L-11-153, and L-11-238 and <u>L-15-120</u></p>	<p>Responses to NRC RAI B.2.39-2 from NRC Letter dated April 5, 2011, and RAI B.2.39-10 from NRC Letter dated July 21, 2011</p>

Table A-1 Davis-Besse License Renewal Commitments				
Item Number	Commitment	Implementation Schedule	Source	Related LRA Section No./ Comments
	recurs after the second set of core bores is performed. If spent fuel pool leakage through another wall or ceiling is identified, then core bores will be performed in a manner similar to that stated for the ECCS Pump Room No. 1 wall and the Room 109 ceiling.			