



FirstEnergy Nuclear Operating Company

5501 North State Route 2
Oak Harbor, Ohio 43449

Raymond A. Lieb
Vice President, Nuclear

419-321-7676
Fax: 419-321-7582

April 19, 2013
L-13-160

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
Reply to Request for Additional Information for the Review of the Davis-Besse Nuclear Power Station, Unit No. 1, License Renewal Application (TAC No. ME4640) and License Renewal Application Amendment No. 40

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 March 26, 2013 (ML13051A056), the Nuclear Regulatory Commission (NRC) requested additional information to complete its review of the License Renewal Application (LRA).

The Attachment provides the FENOC reply to the NRC request for additional information. The NRC request is shown in bold text followed by the FENOC response. The Enclosure provides Amendment No. 40 to the Davis-Besse LRA.

A145
NRC

Davis-Besse Nuclear Power Station, Unit No. 1
L-13-160
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 19, 2013.

Sincerely,



Raymond A. Lieb

Attachment:

Reply to Request for Additional Information for the Review of the Davis-Besse Nuclear Power Station, Unit No. 1 (Davis-Besse), License Renewal Application (LRA), Section A.1

Enclosure:

Amendment No. 40 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-13-160

Reply to Request for Additional Information for the Review of the
Davis-Besse Nuclear Power Station, Unit No. 1 (Davis-Besse),
License Renewal Application (LRA),
Section A.1
Page 1 of 3

Question RAI A.1-1

Background:

By letter dated August 27, 2010, 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. 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." By letter dated July 31, 2012, the NRC provided the "Safety Evaluation Report with Open Items related to the License Renewal of the Davis-Besse Nuclear Power Station" (SER), and requested that FENOC review the SER and provide comments to the NRC staff. By letter dated September 14, 2012, FENOC provided its comments.

During the review of the Davis-Besse license renewal application (LRA) by the U.S. Nuclear Regulatory Commission (NRC) staff, FENOC made commitments related to aging management programs to manage the aging effects of structures and components prior to the period of extended operation. The list of these commitments, as well as the implementation schedules and the sources for each commitment, was included as Table A-1 in Appendix A to the SER with Open Items.

In Section 1.7, "Summary of Proposed License Conditions," of the SER with Open Items, the staff stated that following its review of the LRA, including subsequent information and clarifications provided by the applicant, the staff identified proposed license conditions. The first license condition requires the information in the updated safety analysis report (USAR) supplement, submitted pursuant to 10 CFR 54.21(d), as revised during the license renewal application review process, be made a part of the USAR. The second license condition in part states that the activities listed in Appendix A of the SER and the applicant's USAR supplement be completed no later than October 22, 2016 (i.e., 6 months prior to the period of extended operation).

The NRC plans to revise the second proposed license condition regarding the USAR supplement, which describes certain programs to be implemented and activities to be completed prior to the period of extended operation (PEO). Under the license condition, FENOC will be required to implement those new programs

and enhancements to existing programs no later than 6 months prior to the PEO. In addition, the license condition will state that FENOC shall complete those inspection or testing activities as noted in certain commitments by 6 months prior to the PEO or the end of the last refueling outage prior to the PEO, whichever occurs later.

Therefore, the license condition will be revised to state:

The USAR supplement submitted pursuant to 10 CFR 54.21(d), as revised during the license renewal application review process, and as supplemented by Appendix A of NUREG [XXXX], "Safety Evaluation Report Related to the License Renewal of Davis-Besse Nuclear Power Station" dated [Month Year], describes certain programs to be implemented and activities to be completed prior to the period of extended operation.

- a. The licensee shall implement those new programs and enhancements to existing programs no later than 6 months prior to PEO.
- b. The licensee shall complete those inspection and testing activities, as noted in Commitment Nos. x through xx of Appendix A of NUREG XXXX, by the 6-month date prior to PEO or the end of the last refueling outage prior to the PEO, whichever occurs later.

The licensee shall notify the NRC in writing within 30 days after having accomplished item (a) above and include the status of those activities that have been or remain to be completed in item (b) above.

Issue:

As proposed in the Davis-Besse LRA Table A-1, the implementation schedule for some commitments may conflict with the implementation schedule intended by the generic license condition.

Request:

1. Identify those commitments to implement new programs and enhancements to existing programs. Indicate the expected date for completing the implementation of each of these programs and enhancements.
2. Identify those commitments to complete inspection or testing activities prior to the PEO. Indicate the expected dates for the completion of each of these inspection and testing activities.

RESPONSE RAI A.1-1

1. The following license renewal future commitments to implement new programs and enhance existing programs are revised to change the completion dates from "April 22, 2017," to "prior to October 22, 2016":

Commitments 1-14, 16-21, 25, 27-32, 34, 40, 45-47, and 49

2. The following license renewal future commitments to complete inspection and testing activities are revised to change the completion dates from "April 22, 2017," to "prior to October 22, 2016":

Commitments 22-24, 38, 41, 43, 44, and 48

Additionally, for consistency with the commitment date revisions in response to Requests 1 and 2 above, Commitment 33, Phase 1, Action 2 is revised to change the completion date from "prior to December 31, 2016" to "prior to October 22, 2016". However, the [multiple] activities in Commitment 33 are not "inspection or testing activities", so Commitment 33 was not included in the list of commitments revised in response to Request 2, above, and therefore should not be included in the list of commitments in the license condition.

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

Enclosure A

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

Letter L-13-160

Amendment No. 40 to the Davis-Besse License Renewal Application

Page 1 of 52

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.

<u>Affected LRA Section</u>	<u>LRA Page No.</u>	<u>Affected Paragraph and Sentence</u>
Table A-1	Pages A-55 thru A-69	41 of 49 Commitments Implementation Schedule, Source and Related LRA Section No./ Comments columns

In response to RAI A.1-1, 41 of 49 Commitments in LRA Table A-1, "Davis-Besse License Renewal Commitments," reprinted in its entirety, below, are revised to change the "Implementation Schedule", as follows:

Table A-1 Davis-Besse License Renewal Commitments				
Item Number	Commitment	Implementation Schedule	Source	Related LRA Section No./ Comments
1	<p>Enhance the Aboveground Steel Tanks Inspection Program to:</p> <ul style="list-style-type: none"> Include a volumetric examination of tank bottoms to detect evidence of loss of material due to crevice, general, or pitting corrosion, or to confirm a lack thereof. Establish the examination technique, the inspection locations, and the acceptance criteria for the examination of the tank bottoms. Require that unacceptable inspection results be entered into the FENOC Corrective Action Program. The volumetric examination of the tank bottoms will be performed within five years after entering the period of extended operation. Additional opportunistic tank bottom inspections will be performed whenever the tanks are drained. 	<p><i>Prior to</i> <i>April 22, 2017</i> <u>October 22, 2016</u></p>	<p>LRA and FENOC Letters L-11-153 and <u>L-13-160</u></p>	<p>A.1.2 B.2.2 and Responses to NRC RAIs B.2.2-1 from NRC Letter dated April 20, 2011, and <u>A.1-1 from</u></p>

Table A-1
Davis-Besse License Renewal Commitments

Item Number	Commitment	Implementation Schedule	Source	Related LRA Section No./ Comments
				<u>NRC Letter dated March 26, 2013</u>
2	Implement the Boral® Monitoring Program as described in LRA Section B.2.5.	<u>Prior to April 22, 2017</u> <u>October 22, 2016</u>	LRA and <u>FENOC Letter L-13-160</u>	A.1.5 B.2.5 and <u>Response to NRC RAI A.1-1 from NRC Letter dated March 26, 2013</u>
3	Enhance the Buried Piping and Tanks Inspection Program to: <ul style="list-style-type: none"> Add 1) bolting for buried Fire Protection System piping and 2) the emergency diesel fuel oil storage tanks (DB-T153-1, DB-T153-2) to the scope of the program. Conduct annual ground potential surveys of the cathodic protection system using the acceptance criteria listed in NACE RP0285 2002 and NACE SP0169-2007. Monitor cathodic protection voltage and current monthly to determine the effectiveness of cathodic protection systems and, thereby, the effectiveness of corrosion mitigation. Trend voltage, 	<u>Prior to April 22, 2017</u> <u>October 22, 2016</u>	LRA and <u>FENOC Letters L-11-153 and L-13-160</u>	A.1.7 B.2.7 and <u>Responses to NRC RAIs B.2.7-1 from NRC Letter dated April 20, 2011.</u>

Table A-1
Davis-Besse License Renewal Commitments

Item Number	Commitment	Implementation Schedule	Source	Related LRA Section No./ Comments															
	<p>current, and ground potential readings and evaluate for adverse changes.</p> <ul style="list-style-type: none">Require that the activity of the jockey fire pump or equivalent parameter be monitored on at least a monthly interval. Conduct a flow test by the end of the next refueling outage when unexplained changes in jockey pump activity are observed.Require that the directed buried pipe inspection locations be selected based on risk.Require that the minimum number of buried in-scope piping inspections during the 30-40, 40-50, and 50-60 year operating period is one steel safety-related piping segment and one steel piping segment containing hazardous material. Perform the directed buried steel pipe and tank inspections each ten year interval based upon the following table. Each inspection will have a minimum of 10 feet of piping inspected. <table><tr><th>Preventive Actions</th><th># of inspections of safety related piping or tanks</th><th># of Hazmat inspections or % of pipe length</th></tr><tr><td>A</td><td>1 (Note 2)</td><td>1 (Note 2)</td></tr><tr><td>B</td><td>1</td><td>2 %</td></tr><tr><td>C</td><td>4</td><td>5 %</td></tr><tr><td>D</td><td>8</td><td>10 %</td></tr></table> <p>Note 1: Preventive actions are categorized as follows:</p> <p>A. - Cathodic protection, in accordance with</p>	Preventive Actions	# of inspections of safety related piping or tanks	# of Hazmat inspections or % of pipe length	A	1 (Note 2)	1 (Note 2)	B	1	2 %	C	4	5 %	D	8	10 %			<p><u>and</u> <u>A.1-1 from</u> <u>NRC Letter</u> <u>dated</u> <u>March 26, 2013</u></p>
Preventive Actions	# of inspections of safety related piping or tanks	# of Hazmat inspections or % of pipe length																	
A	1 (Note 2)	1 (Note 2)																	
B	1	2 %																	
C	4	5 %																	
D	8	10 %																	

Table A-1
Davis-Besse License Renewal Commitments

Item Number	Commitment	Implementation Schedule	Source	Related LRA Section No./ Comments
	<p>NACE SP0169-2007 or NACE RP0285-2002, was installed for at least 5 years prior to entering the period of extended operation and was operational for 90% of the time during that 5 years or cathodic protection was operational for 90% of the time since the last inspection conducted under this program.</p> <p>B. - Cathodic protection, in accordance with NACE SP0169-2007 or NACE RP0285-2002, was installed for less than 5 years prior to entering the period of extended operation or was operational for less than 90% of the time during that 5 years or cathodic inspection was operational for less than 90% of the time since the last inspection conducted under this program</p> <p>C. – Protective coatings are in place and no mechanical coating damage due to the backfill, but cathodic protection is not provided or not in accordance with criteria A or B and the period of extended operation has not been entered.</p> <p>D. – Criteria of A, B, and C not met.</p> <p>Note 2: Only one inspection is required for piping which is both safety-related and contains hazardous material.</p> <ul style="list-style-type: none"> Require that the EDG Fuel Oil Storage Tanks (DB-T153-1 and DB-T153-2) be inspected prior to entering the period of extended operation. The inspection will be either a visual 			

Table A-1
Davis-Besse License Renewal Commitments

Item Number	Commitment	Implementation Schedule	Source	Related LRA Section No./ Comments
	<p>inspection of at least 25% of each tank and include at least some portion of the tank top and bottom or, an internal inspection consisting of UT measurements with at least one measurement per square foot of the surface of the tanks. These inspections are not required if it is demonstrated that the tanks are cathodically protected in accordance with NACE SP0169-2007 or NACE RP0285-2002.</p> <ul style="list-style-type: none"> Require that a visual and volumetric inspection of the underground piping within the borated water piping trench will be performed during each 10-year period beginning no sooner than 10 years prior to the entry into the period of extended operation. Require that if adverse indications are detected, additional buried in-scope piping inspections be performed in order to provide reasonable assurance of the integrity of buried piping. Base the selection of components to be examined on previous examination results, trending, risk ranking, and areas of cathodic protection failures or gaps, if applicable. Continue additional sampling until reasonable assurance of the integrity of buried piping is provided. Require that an inspection of buried Fire Protection System bolting will be performed when the bolting becomes accessible during opportunistic or focused inspections. 			

Table A-1
Davis-Besse License Renewal Commitments

Item Number	Commitment	Implementation Schedule	Source	Related LRA Section No./ Comments
	<ul style="list-style-type: none"> Require that the inspections of buried piping be conducted using visual (VT-3 or equivalent) inspection methods. Excavation shall be a minimum of 10 linear feet of piping, with all surfaces of the pipe exposed. 			
4	Implement the Collection, Drainage, and Treatment Components Inspection Program as described in LRA Section B.2.9.	<u>Prior to April 22, 2017</u> <u>October 22, 2016</u>	LRA and <u>FENOC Letter L-13-160</u>	A.1.9 B.2.9 and <u>Response to NRC RAI A.1-1 from NRC Letter dated March 26, 2013</u>
5	<p>Implement the Electrical Cable Connections Not Subject to 10 CFR 50.49 Environmental Qualification Requirements Inspection as described in LRA Section B.2.11.</p> <p>Enhance the Electrical Cable Connections Not Subject to 10 CFR 50.49 Environmental Qualification Requirements Inspection to:</p> <ul style="list-style-type: none"> Include high voltage connections to confirm the absence of aging effects for metallic electrical connections. 	<u>Prior to April 22, 2017</u> <u>October 22, 2016</u>	LRA and <u>FENOC Letters L-11-134 and L-13-160</u>	A.1.11 B.2.11 and <u>Responses to NRC RAIs 3.6-3 from NRC Letter dated</u>

Table A-1
Davis-Besse License Renewal Commitments

Item Number	Commitment	Implementation Schedule	Source	Related LRA Section No./ Comments
				<i>April 5, 2011, and A.1-1 from NRC Letter dated March 26, 2013</i>
6	Implement the Electrical Cables and Connections Not Subject to 10 CFR 50.49 Environmental Qualification Requirements Program as described in LRA Section B.2.12.	<i>Prior to April 22, 2017 October 22, 2016</i>	LRA and <i>FENOC Letter L-13-160</i>	A.1.12 B.2.12 and <i>Response to NRC RAI A.1-1 from NRC Letter dated March 26, 2013</i>

Table A-1
Davis-Besse License Renewal Commitments

Item Number	Commitment	Implementation Schedule	Source	Related LRA Section No./ Comments
7	Implement the Electrical Cables and Connections Not Subject to 10 CFR 50.49 Environmental Qualification Requirements Used in Instrumentation Circuits Program as described in LRA Section B.2.13.	<u>Prior to April 22, 2017</u> <u>October 22, 2016</u>	LRA and <u>FENOC Letter L-13-160</u>	A.1.13 B.2.13 and <u>Response to NRC RAI A.1-1 from NRC Letter dated March 26, 2013</u>
8	Enhance the External Surfaces Monitoring Program to: <ul style="list-style-type: none"> Add systems which credit the program for license renewal but do not have Maintenance Rule intended functions to the scope of the program. Perform opportunistic inspections of surfaces that are inaccessible or not readily visible during normal plant operations or refueling outages, such as surfaces that are insulated. Surfaces that are accessible will be inspected at a frequency not to exceed one refueling cycle. Perform, in conjunction with the Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Program, inspection and surveillance of elastomers and polymers exposed to air-indoor uncontrolled or air-outdoor environments, but not replaced on a 	<u>Prior to April 22, 2017</u> <u>October 22, 2016</u>	LRA and <u>FENOC Letters L-11-153, L-11-166, L-11-238 and L-13-160</u>	A.1.15 B.2.15 and <u>Responses to NRC RAIs 3.3.2.2.5-1 and B.2.2-2 from NRC Letter dated April 20, 2011, 3.3.2-2 from NRC Letter</u>

Table A-1
Davis-Besse License Renewal Commitments

Item Number	Commitment	Implementation Schedule	Source	Related LRA Section No./ Comments
	<p>set frequency or interval (i.e., are long-lived), for evidence of cracking and change in material properties (hardening and loss of strength) and loss of material due to wear. Specify acceptance criteria of no unacceptable visual indications of cracks or discoloration that would lead to loss of function prior to the next inspection, and of no hardening as evidenced by a loss of suppleness during manipulation.</p> <ul style="list-style-type: none"> • Perform inspection of the control room emergency ventilation system air-cooled condensing unit cooling coil tubes and fins and the station blackout diesel generator radiator tubes and fins for visible evidence of external surface conditions that could result in a reduction in heat transfer. Specify acceptance criteria of no unacceptable visual indications of fouling (build up of dirt or other foreign material) that would lead to loss of function prior to the next scheduled inspection. • Manage cracking of copper alloys with greater than 15 percent zinc and stainless steel components exposed to an outdoor air environment through plant system inspections and walkdowns for evidence of leakage. Specify acceptance criteria of no unacceptable visual indications of cracks that would lead to loss of function prior to the next scheduled inspection. • Include inspection parameters and acceptance criteria for polymers, elastomers and metallic components as applicable in system inspection and walkdown documentation. Retain system 			<p><i>dated</i> <i>May 2, 2011,</i> <i>3.3.2.2.5-2 from</i> <i>NRC Letter</i> <i>dated</i> <i>July 12, 2011,</i> <i>Supplemental</i> <i>RAI OIN-352</i> <i>from</i> <i>NRC Region III</i> <i>IP-71002</i> <i>Inspection,</i> <i>and</i> <i>A.1-1 from</i> <i>NRC Letter</i> <i>dated</i> <i>March 26, 2013</i></p>

Table A-1
Davis-Besse License Renewal Commitments

Item Number	Commitment	Implementation Schedule	Source	Related LRA Section No./ Comments
	inspection and walkdown documentation in plant records.			
9	<p>Enhance the Fatigue Monitoring Program to:</p> <ul style="list-style-type: none"> Provide for updates of the fatigue usage calculations on an as needed basis if an allowable cycle limit is approached. When the number of accrued cycles is within 75% of the allowable cycle limit for any transient, a condition report will be generated. For any transient whose cycles are projected to exceed the allowable cycle limit by the end of the next plant operating cycle (Davis-Besse operating cycles are normally two years in duration), the program will require an update of the fatigue usage calculation for the affected component(s). Establish an acceptance criterion for maintaining the cumulative fatigue usage below the Code design limit of 1.0 through the period of extended operation, including environmental effects where applicable 	<p><i>Prior to</i> <i><u>April 22, 2017</u></i> <i><u>October 22, 2016</u></i></p>	<p>LRA and <i>FENOC</i> <i>Letters</i> <i>L-11-166</i> <i>and</i> <i><u>L-13-160</u></i></p>	<p>A.1.16 B.2.16 and <i>Responses to</i> <i>NRC RAIs</i> <i>B.2.16-3,</i> <i>B.2.16-4</i> <i>and</i> <i>B.2.16-5</i> <i>from</i> <i>NRC Letter</i> <i>dated</i> <i>April 20, 2011,</i> <i>and</i> <i><u>A.1-1 from</u></i> <i><u>NRC Letter</u></i> <i>dated</i> <i><u>March 26, 2013</u></i></p>
10	<p>Enhance the Fire Water Program to:</p> <ul style="list-style-type: none"> Perform periodic ultrasonic testing for wall thickness of representative above-ground water suppression piping that is 	<p><i>Prior to</i> <i><u>April 22, 2017</u></i> <i><u>October 22, 2016</u></i></p>	<p>LRA <i>and</i></p>	<p>A.1.18 B.2.18</p>

Table A-1
Davis-Besse License Renewal Commitments

Item Number	Commitment	Implementation Schedule	Source	Related LRA Section No./ Comments
	<p>not periodically flow tested but contains, or has contained, stagnant water. The ultrasonic testing will be performed prior to the period of extended operation and at appropriate intervals thereafter, based on engineering evaluation of the initial results.</p> <ul style="list-style-type: none"> • Perform at least one opportunistic or focused visual inspection of the internal surface of buried fire water piping and of similar above-ground fire water piping, within the five-year period prior to the period of extended operation, to confirm whether conditions on the internal surface of above-ground fire water piping can be extrapolated to be indicative of conditions on the internal surface of buried fire water piping. • Perform representative sprinkler head sampling (laboratory field service testing) or replacement prior to 50 years in-service (installed), and at 10-year intervals thereafter, in accordance with NFPA 25, or until there are no untested sprinkler heads that will see 50 years of service through the end of the period of extended operation. • Perform opportunistic fire water supply and water-based suppression system internal inspections each time a fire water supply or water-based suppression system (including fire pumps) is breached for repair or maintenance. These internal, visual inspections must be demonstrated to be: 1) representative of water supply and water-based suppression locations, 2) performed on a reasonable basis (frequency), and 		<p><u>FENOC Letter L-13-160</u></p>	<p><u>and Response to NRC RAI A.1-1 from NRC Letter dated March 26, 2013</u></p>

Table A-1
Davis-Besse License Renewal Commitments

Item Number	Commitment	Implementation Schedule	Source	Related LRA Section No./ Comments
	3) capable of evaluating wall thickness and flow capability. If the internal inspections cannot be completed of a representative sample, then ultrasonic testing inspections will be used to complete the representative sample.			
11	<p>Implement the Inaccessible Power Cables Not Subject to 10 CFR 50.49 Environmental Qualification Requirements Program as described in LRA Section B.2.21.</p> <p>Enhance the Inaccessible Power Cables Not Subject to 10 CFR 50.49 Environmental Qualification Requirements Program to:</p> <ul style="list-style-type: none"> • Include inaccessible underground lower service voltage cables (400VAC to 2kV). • Not use 'significant voltage' (defined as being subjected to system voltage for more than twenty-five percent of the time) as a criterion for inclusion into the program. • Include inspection of electrical manholes which contain power cables within the scope of the program. • Inspect electrical manholes at least once per year. The frequency of inspections for accumulated water will be established and adjusted based on plant-specific inspection results. Also, manhole inspections will be performed in response to event-driven occurrences (e.g., heavy rain or flooding). 	<p><i>Prior to</i> <i><u>April 22, 2017</u></i> <i><u>October 22, 2016</u></i></p>	<p>LRA and <i>FENOC Letters</i> <i><u>L-11-134</u></i> <i>and</i> <i><u>L-13-160</u></i></p>	<p>A.1.21 B.2.21 and <i>Responses to NRC RAIs</i> <i><u>B.2.21-1 and</u></i> <i><u>B.2.21-3 from</u></i> <i><u>NRC Letter</u></i> <i><u>dated</u></i> <i><u>April 5, 2011,</u></i> <i><u>and</u></i> <i><u>A.1-1 from</u></i> <i><u>NRC Letter</u></i> <i><u>dated</u></i> <i><u>March 26, 2013</u></i></p>

Table A-1
Davis-Besse License Renewal Commitments

Item Number	Commitment	Implementation Schedule	Source	Related LRA Section No./ Comments
	<ul style="list-style-type: none"> Include a requirement in preventive maintenance activities PM 4297, PM 4294, PM 8025, and PM 4296 to generate a condition report in cases where in scope inaccessible non-EQ power cable manhole inspection identifies submerged cables. Although the Inaccessible Power Cables Not Subject to 10 CFR 50.49 Environmental Qualification Requirements Program is a new program, preventive maintenance activities exist for inspection of water accumulation in the manholes associated with the in scope inaccessible non-EQ power cables. Perform cable testing on a frequency of at least every 6 years. Testing will be evaluated for more frequent performance based on test results and operating experience. 			
12	<p>Enhance the Masonry Wall Inspection to:</p> <ul style="list-style-type: none"> Include and list the structures within the scope of license renewal that credit the program for aging management. Add an action to follow the documentation requirement of 10 CFR 54.37, including submittal of records of structural evaluations to records management. Specify that for each masonry wall, the extent of observed masonry cracking or degradation of steel edge supports or bracing is evaluated to ensure that the current evaluation basis is still valid. Corrective action is required if the extent of masonry 	<p><i>Prior to April 22, 2017 <u>October 22, 2016</u></i></p>	<p>LRA and FENOC Letters L-11-153 and <u>L-13-160</u></p>	<p>A.1.27 B.2.27 and Responses to NRC RAIs B.2.39-5 from NRC Letter dated April 5, 2011, and</p>

Table A-1
Davis-Besse License Renewal Commitments

Item Number	Commitment	Implementation Schedule	Source	Related LRA Section No./ Comments
	<p>cracking or steel degradation is sufficient to invalidate the evaluation basis. An option is to develop a new evaluation basis that accounts for the degraded condition of the wall (i.e., acceptance by further evaluation).</p> <ul style="list-style-type: none"> Specify that for the masonry walls within the scope of license renewal, inspections will be conducted at least once every five years, with provisions for more frequent inspections in areas where significant loss of material or cracking is observed to ensure there is no loss of intended function between inspections. 			<p><u>A.1-1 from NRC Letter dated March 26, 2013</u></p>

Table A-1
Davis-Besse License Renewal Commitments

Item Number	Commitment	Implementation Schedule	Source	Related LRA Section No./ Comments
13	<p>Implement the One-Time Inspection as described in LRA Section B.2.30. Enhance the One-Time Inspection to:</p> <ul style="list-style-type: none"> Include enhanced visual (EVT-1 or equivalent) or surface examination (magnetic particle, liquid penetrant), or volumetric (RT or UT) inspections to detect and characterize cracking due to cyclic loading of the stainless steel makeup pump casings (DB-P37-1 and 2) of the Makeup and Purification System. The one-time inspections will provide verification of the absence of cracking due to cyclic loading. 	<p><i>Prior to</i> <i>April 22, 2017</i> <i><u>October 22, 2016</u></i></p>	<p>LRA and <i>FENOC Letters</i> <i>L-11-153,</i> <i>L-11-166,</i> <i>L-11-218,</i> <i>L-11-237,</i> <i>L-11-252</i> <i>and</i> <i><u>L-13-160</u></i></p>	<p>A.1.30 B.2.30 and <i>Responses to</i> <i>NRC RAIs</i> <i>3.3.2.2.4.3-1</i> <i>from</i> <i>NRC Letter</i> <i>dated</i> <i>May 2, 2011,</i> <i>and</i> <i>Supplemental</i> <i>Question –</i> <i>Makeup Pump</i> <i>Casing</i> <i>Inspections,</i> <i>and</i> <i><u>A.1-1 from</u></i> <i><u>NRC Letter</u></i> <i>dated</i> <i><u>March 26, 2013</u></i></p>

Table A-1
Davis-Besse License Renewal Commitments

Item Number	Commitment	Implementation Schedule	Source	Related LRA Section No./ Comments
14	Implement the PWR Reactor Vessel Internals Program as described in LRA Section B.2.32.	<u>Prior to April 22, 2017</u> <u>October 22, 2016</u>	LRA and <u>FENOC Letter L-13-160</u>	A.1.32 B.2.32 and <u>Response to NRC RAI A.1-1 from NRC Letter dated March 26, 2013</u>
15	In association with the PWR Reactor Vessel Internals Program, a plant-specific inspection plan for ensuring the implementation of MRP-227 program guidelines, as amended by the safety evaluation for MRP-227, and Davis-Besse's responses to the plant-specific action items, as identified in Section 4.2 of the safety evaluation for MRP-227, will be submitted for NRC review and approval. * NOTE: The inspection plan will be submitted no later than two years after issuance of the renewed operating license or two years prior to the beginning of the period of extended operation (April 22, 2015), whichever is earlier.	Prior to April 22, 2015 *	LRA and FENOC Letter L-11-252	A.1.32 B.2.32 and Response to NRC RAI B.2.32-1 from NRC Letter dated July 11, 2011
16	Enhance the Reactor Head Closure Studs Program as follows: <ul style="list-style-type: none"> Select an alternate stable lubricant that is compatible with the 	<u>Prior to April 22, 2017</u> <u>October 22, 2016</u>	LRA and	A.1.34 B.2.34

Table A-1
Davis-Besse License Renewal Commitments

Item Number	Commitment	Implementation Schedule	Source	Related LRA Section No./ Comments
	<p>fastener material and the environment. A specific precaution against the use of compounds containing sulfur (sulfide), including molybdenum disulfide (MoS₂), as a lubricant for the reactor head closure stud assemblies will be included in the program.</p> <ul style="list-style-type: none"> Preclude the future use of replacement closure stud bolting fabricated from material with actual measured yield strength greater than or equal to 150 ksi except for use of the existing spare reactor head closure stud bolting. 		<p><i>FENOC Letters L-11-218 and L-13-160</i></p>	<p>and <i>Responses to NRC RAIs B.2.34-1 from NRC Letter dated June 20, 2011, and A.1-1 from NRC Letter dated March 26, 2013</i></p>
17	<p>Enhance the Reactor Vessel Surveillance Program as follows:</p> <ul style="list-style-type: none"> The Capsule Insertion and Withdrawal Schedule for Davis-Besse will be revised to schedule testing of the TE1-C capsule. 	<p><i>Prior to April 22, 2017 October 22, 2016</i></p>	<p>LRA <i>and</i> <i>FENOC Letter L-13-160</i></p>	<p>A.1.35 B.2.35 <i>and</i> <i>Response to NRC RAI A.1-1 from NRC Letter dated March 26, 2013</i></p>

Table A-1
Davis-Besse License Renewal Commitments

Item Number	Commitment	Implementation Schedule	Source	Related LRA Section No./ Comments
18	Implement the Selective Leaching Inspection as described in LRA Section B.2.36.	<u>Prior to April 22, 2017</u> <u>October 22, 2016</u>	LRA <u>and</u> <u>FENOC Letter L-13-160</u>	A.1.36 B.2.36 <u>and</u> <u>Response to NRC RAI A.1-1 from NRC Letter dated March 26, 2013</u>
19	Implement the Small Bore Class 1 Piping Inspection as described in LRA Section B.2.37.	<u>Completed within the six year period prior to April 22, 2017</u> <u>October 22, 2016</u>	LRA <u>and</u> <u>FENOC Letters L-11-153 and L-13-160</u>	A.1.37 B.2.37 <u>and</u> <u>Responses to NRC RAI B.2.37-2 from NRC Letter dated April 20, 2011, and A.1-1 from NRC Letter</u>

Table A-1
Davis-Besse License Renewal Commitments

Item Number	Commitment	Implementation Schedule	Source	Related LRA Section No./ Comments
				<u>dated</u> <u>March 26, 2013</u>
20	<p>Enhance the Structures Monitoring Program to:</p> <ul style="list-style-type: none"> • Include and list the structures within the scope of license renewal that credit the program for aging management. • Include aging effect terminology (e.g., loss of material, cracking, change in material properties, and loss of form). • List ACI 349.3R and ANSI/ASCE 11-90 as references and indicate that they provide guidance for the selection of parameters monitored or inspected. • Clarify that a "structural component" for inspection includes each of the component types identified within the scope of license renewal as requiring aging management. • Require the responsible engineer to review site raw water pH, chlorides, and sulfates test results prior to the inspection to take into account the raw water chemistry for any unusual trends during the period of extended operation. Raw water chemistry data shall be collected at least once every five years. Data collection dates shall be staggered from year to year (summer-winter-summer) to account for seasonal variation. • Perform an inspection for loss of material for carbon steel structural components subject to aggressive groundwater. 	<p><i>Prior to</i> <i>April 22, 2017</i> <i><u>October 22, 2016</u></i></p>	<p>LRA and <i>FENOC</i> <i>Letters</i> <i>L-11-153,</i> <i>L-11-237,</i> <i>L-11-292,</i> <i>L-11-317,</i> <i>L-12-455,</i> <i>L-13-037</i> <i>and</i> <i><u>L-13-160</u></i></p>	<p>A.1.39 B.2.39 and <i>Responses to</i> <i>NRC RAIs</i> <i>B.2.39-4,</i> <i>B.2.39-5,</i> <i>B.2.39-6</i> <i>and</i> <i>B.2.39-7</i> <i>from</i> <i>NRC Letter</i> <i>dated</i> <i>April 5, 2011,</i> <i>B.2.39-11 and</i> <i>3.5.2.3.12-4</i> <i>from</i> <i>NRC Letter</i> <i>dated</i> <i>July 21, 2011,</i> <i>Supplemental</i></p>

Table A-1
Davis-Besse License Renewal Commitments

Item Number	Commitment	Implementation Schedule	Source	Related LRA Section No./ Comments
	<p>Require the use of the FENOC Corrective Action Program for identified concrete or steel degradation.</p> <ul style="list-style-type: none"> Specify that, upon notification that a below-grade structural wall or other in-scope concrete or metal structural component will become accessible through excavation, a follow-up action is initiated to the responsible engineer to inspect the exposed surfaces for age-related degradation. Such inspections will include concrete examination using acceptance criteria from NUREG-1801, XI.S6, Program element 6. Degradation found that exceeds the acceptance criteria will be trended and processed through the FENOC Corrective Action Program. List ACI 349.3R, ANSI/ASCE 11-90, and EPRI Report 1007933 as references and indicate that they provide guidance for detection of aging effects. Add an action to follow the documentation requirement of 10 CFR 54.37, including submittal of records of structural evaluations to records management. Add sufficient acceptance criteria and critical parameters to trigger an increased level of inspection and initiation of corrective action. Indicate that ACI 349.3R provides acceptable guidelines which will be considered in developing acceptance criteria for concrete structural elements, steel liners, joints, and waterproofing membranes. The acceptance criteria for visual 			<p><i>RAI B.2.39-11 from telecon held with the NRC on September 13, 2011,</i></p> <p><i>Supplemental RAI OIN-380 from Region III IP-71002 Inspection,</i></p> <p><i>B.2.4-1a from NRC Letter dated November 14, 2012,</i></p> <p><i>and</i></p> <p><i>B.2.43-3a from NRC Letter dated January 4, 2013,</i></p> <p><i>and</i></p>

Table A-1
Davis-Besse License Renewal Commitments

Item Number	Commitment	Implementation Schedule	Source	Related LRA Section No./ Comments
	<p>inspection of coatings on in-scope concrete structures will be in accordance with ACI 349.3R. Plant specific quantitative degradation limits, similar to the three-tier hierarchy acceptance criteria from Chapter 5 of ACI 349.3R, will be developed and added to the inspection procedure. The Structures Monitoring Program procedure will also be enhanced to reflect the "Periodic Evaluation" criteria defined in chapter 3.3 of ACI 349.3R. The Structures Monitoring Program procedure will include the "prioritization process" to develop a representative sample of areas to inspect in accordance with ACI 349.3R.</p> <ul style="list-style-type: none"> • Require that personnel performing the structural inspections meet qualifications that are commensurate with ACI 349.3R, "Evaluation of Existing Nuclear Safety-Related Concrete Structures," Chapter 7, "Qualifications of Evaluation Team." • The program procedure will be enhanced by specifying that, for the structures within the scope of license renewal, inspections will be conducted at least once every five years. • Conduct a baseline inspection of the structures within the scope of license renewal prior to entering the period of extended operation. • Require optical aids, scaling technologies, mechanical lifts, ladders or scaffolding for tall structures or difficult to reach areas of structures to allow visual inspections that meet the guidelines 			<p><u>A.1-1 from</u> <u>NRC Letter</u> <u>dated</u> <u>March 26, 2013</u></p>

Table A-1
Davis-Besse License Renewal Commitments

Item Number	Commitment	Implementation Schedule	Source	Related LRA Section No./ Comments
	<p>of Chapter 5 of ACI 349.3R. Select the areas to be inspected in accordance with the guidelines of Chapter 5 of ACI 349.3R to reflect the "Periodic Evaluation" criteria defined in Chapter 3.3 of ACI 349.3R. Include the "prioritization process" in the selection methodology to develop a representative sample of areas to inspect in accordance with ACI 349.3R.</p> <ul style="list-style-type: none"> • Monitor elastomeric vibration isolators and structural sealants for cracking, loss of material and hardening. • Supplement visual inspection of elastomeric vibration isolation elements by feel to detect hardening if the vibration isolation function is suspect. • Identify that: <ul style="list-style-type: none"> ○ Loose bolts and nuts and cracked high strength bolts are not acceptable unless accepted by engineering evaluation; ○ Structural sealants are acceptable if the observed loss of material, cracking, and hardening will not result in loss of sealing; and, ○ Elastomeric vibration isolation elements are acceptable if there is no loss of material, cracking, or hardening that could lead to the reduction or loss of isolation function. • Require that high strength (i.e., ASTM A540 Grade B23) structural bolting materials with an actual measured yield 			

Table A-1
Davis-Besse License Renewal Commitments

Item Number	Commitment	Implementation Schedule	Source	Related LRA Section No./ Comments
	<p>strength greater than or equal to 150 kilo-pounds per square inch (ksi) and greater than 1 inch in nominal diameter are monitored for stress corrosion cracking (SCC). Perform periodic visual inspections of susceptible ASTM A540 bolting to identify locations where A540 bolting may be exposed to a potentially corrosive environment for SCC. Complete the initial visual inspections prior to entering the period of extended operation, and perform recurring inspections at an interval not to exceed five years. Perform volumetric examination (i.e., ultrasonic testing) on a sampling basis of bolting exposed to a corrosive environment, as determined by engineering evaluation, to a depth of at least 12 inches.</p> <ul style="list-style-type: none"> Require that personnel performing ultrasonic testing (UT) examinations of structural bolting have a current ASME Code Section XI, Appendix VIII, Supplement 8 endorsement. Revise the applicable structural bolting specifications to prevent future use of A540 bolting with measured yield strength equal to or exceeding 150 ksi. 			
21	<p>Enhance the Water Control Structures Inspection to:</p> <ul style="list-style-type: none"> Include the Service Water Discharge Structure which is within the scope of license renewal. Include parameters monitored and inspected for water control structures, including the Service Water Discharge Structure, in 	<p><i>Prior to</i> <i>April 22, 2017</i> <u><i>October 22, 2016</i></u></p>	<p>LRA and FENOC</p>	<p>A.1.40 B.2.40 and <i>Responses to</i></p>

Table A-1
Davis-Besse License Renewal Commitments

Item Number	Commitment	Implementation Schedule	Source	Related LRA Section No./ Comments
	<p>accordance with applicable inspection elements listed in Section C.2 of Regulatory Guide 1.127 Revision 1. Descriptions of concrete conditions will conform with the appendix to the American Concrete Institute (ACI) publication, ACI 201. The use of photographs for comparison of previous and present conditions will be included as a part of the inspection program.</p> <ul style="list-style-type: none"> Specify that water control structure periodic inspections are to be performed at least once every five years. Add an action to follow the documentation requirement of 10 CFR 54.37, including submittal of records of structural evaluations to records management. Add sufficient acceptance criteria and critical parameters to trigger an increased level of inspection and initiation of corrective action. Indicate that ACI 349.3R provides acceptable guidelines which will be considered in developing acceptance criteria for water control structures. Plant-specific quantitative degradation limits, similar to the three-tier hierarchy acceptance criteria from Chapter 5 of ACI 349.3R, will be developed and added to the inspection procedure. The Structures Monitoring Program procedure will also be enhanced to reflect the "Periodic Evaluation" criteria defined in chapter 3.3 of ACI 349.3R. The Structures Monitoring Program procedure will include the "prioritization process" to develop a representative sample of areas to inspect in accordance with ACI 349.3R. 		<p><i>Letters L-11-153, L-11-292 and L-13-160</i></p>	<p><i>NRC RAIs B.2.39-6 from NRC Letter dated April 5, 2011, and Supplemental RAI OIN-379 from Region III IP-71002 Inspection, and A.1-1 from NRC Letter dated March 26, 2013</i></p>

Table A-1
Davis-Besse License Renewal Commitments

Item Number	Commitment	Implementation Schedule	Source	Related LRA Section No./ Comments
	<ul style="list-style-type: none"> Conduct a baseline inspection of the structures within the scope of license renewal prior to entering the period of extended operation. Require that loose bolts and nuts, cracked high strength bolts, and degradation of piles and sheeting (sheet pilings) are accepted by engineering evaluation or subject to corrective actions. Engineering evaluation will be documented and based on codes, specifications and standards such as American Institute of Steel Construction (AISC) specifications, Structural Engineering Institute / American Society of Civil Engineers (SEI/ASCE) 11, and codes, specifications or standards referenced in the Davis-Besse current licensing basis. 			
22	Enclose or otherwise protect the safety-related station ventilation radiation monitors located in the Turbine Building such that leakage and spray from surrounding piping systems does not adversely impact the intended function of the radiation monitors.	<u>Prior to April 22, 2017</u> <u>October 22, 2016</u>	N/A <u>FENOC Letter L-13-160</u>	N/A <u>Response to NRC RAI A.1-1 from NRC Letter dated March 26, 2013</u>
23	In association with the TLAA for effects of environmentally assisted fatigue of the high pressure injection (HPI) nozzle safe end including the associated Alloy 82/182 weld (weld that connects the safe end to the nozzle), replace the HPI nozzle safe end including the	<u>Prior to April 22, 2017</u> <u>October 22, 2016</u>	LRA and	A.2.3.4.2 A.2.7.4 and

Table A-1
Davis-Besse License Renewal Commitments

Item Number	Commitment	Implementation Schedule	Source	Related LRA Section No./ Comments
	associated Alloy 82/182 weld for all four HPI nozzles prior to the period of extended operation. Apply the Fatigue Monitoring Program to evaluate the environmental effects and manage cumulative fatigue damage for the replacement high pressure injection (HPI) nozzle safe ends and associated welds.		<i>FENOC Letters L-11-107, L-11-203, L-11-334 and L-13-160</i>	<i>Responses to NRC RAIs 4.7.4-1 from NRC Letter dated April 15, 2011, 4.3-18 from NRC Letter dated June 17, 2011, and 4.7.4-1 from NRC Letter dated October 11, 2011, and A.1-1 from NRC Letter dated March 26, 2013</i>

Table A-1
Davis-Besse License Renewal Commitments

Item Number	Commitment	Implementation Schedule	Source	Related LRA Section No./ Comments
24	Apply the elements of corrective actions, confirmation process, and administrative controls in the Quality Assurance Program Manual to the credited aging management programs and activities for safety-related and nonsafety-related structures and components determined to require aging management for the period of extended operation.	<i>Prior to April 22, 2017 October 22, 2016</i>	LRA and FENOC Letters L-11-166 and L-13-160	A.1 and Responses to NRC RAI 3.0 from NRC Letter dated May 2, 2011, and A.1-1 from NRC Letter dated March 26, 2013
25	Enhance the Steam Generator Tube Integrity Program to: <ul style="list-style-type: none"> • Include gross visual inspection of the steam generator tube to tubesheet welds coupled with eddy-current inspection (i.e., bobbin coil or rotating coil examinations) of the tubes to monitor for cracking and degradation of the tube-to-tubesheet welds (Alloy 600). Schedule the gross visual inspection of the tube-to-tubesheet welds concurrent with eddy-current inspection of the steam generator tubes that are scheduled in accordance with Davis-Besse Technical Specification 5.5.8 such that 100% of the tube-to-tubesheet welds (includes both the hot leg and cold 	<i>Prior to April 22, 2017 October 22, 2016</i>	LRA and FENOC Letters L-12-001 and L-13-160	A.1.38 B.2.38 and Responses to NRC RAI 3.1.2.2.16-3 from NRC Letter dated

Table A-1
Davis-Besse License Renewal Commitments

Item Number	Commitment	Implementation Schedule	Source	Related LRA Section No./ Comments
	leg welds) are inspected at sequential periods of 60 effective full power months. Perform the gross visual inspection of the tube to tubesheet welds through remote-visual examination using a manipulator camera to obtain a straight-on view of the weld with a visual acuity sufficient to detect evidence of degradation. Perform the gross visual inspections using personnel who are qualified for American Society of Mechanical Engineers (ASME) code visual examination (i.e., are certified VT-1 or VT-3 examiners) and are knowledgeable in the type of tube-to-tubesheet welds being examined (i.e., fillet welds). Define the acceptance criteria for the gross visual inspections and the eddy-current inspections as no indication of cracking or relevant conditions of degradation.			<i>December 27, 2011, and A.1-1 from NRC Letter dated March 26, 2013</i>
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.	Prior to December 31, 2014	FENOC Letters L-11-153, L-11-237 and L-11-292	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

Table A-1
Davis-Besse License Renewal Commitments

Item Number	Commitment	Implementation Schedule	Source	Related LRA Section No./ Comments
				Supplemental RAI B.2.39-11 from telecon held with the NRC on September 13, 2011
27	DBNPS Surveillance Test Procedure DB-PF-03009, Revision 06, "Containment Vessel and Shielding Building Visual Inspection," Subsection 2.1.2, shall be enhanced to state, "Personnel who perform general visual examinations of the exterior surface of the Containment Vessel and the interior and exterior surfaces of the Shield 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." These individuals shall be knowledgeable of the types of conditions which may be expected to be identified during the examinations."	<i>Prior to <u>April 22, 2017</u> <u>October 22, 2016</u></i>	<i>FENOC Letters L-11-134 and <u>L-13-160</u></i>	<i>Responses to NRC RAIs B.2.1-1 from NRC Letter dated April 5, 2011, and A.1-1 from NRC Letter dated <u>March 26, 2013</u></i>
28	Enhance the Fuel Oil Chemistry Program to: <ul style="list-style-type: none"> Require that internal surfaces of emergency diesel generator fuel oil storage tanks and day tanks, diesel oil storage tank, diesel fire pump day tank, and station blackout diesel generator day tank are periodically drained (at least once every 10 years) 	<i>Prior to <u>April 22, 2017</u> <u>October 22, 2016</u></i>	LRA and FENOC	A.1.20 B.2.20 and Responses to

Table A-1
Davis-Besse License Renewal Commitments

Item Number	Commitment	Implementation Schedule	Source	Related LRA Section No./ Comments
	<p>for cleaning and are visually inspected to detect potential degradation. If degradation is identified in a diesel fuel tank by visual inspections, a volumetric inspection is performed.</p> <ul style="list-style-type: none"> Require that biological activity be monitored and trended at least quarterly. 		<p><i>Letters</i> <i>L-11-134,</i> <i>L-11-238</i> <i>and</i> <i><u>L-13-160</u></i></p>	<p><i>NRC RAIs</i> <i>B.2.20-1 and</i> <i>B.2.20-2 from</i> <i>NRC Letter</i> <i>dated</i> <i>April 5, 2011,</i> <i>and</i> <i>Supplemental</i> <i>RAI OIN-368</i> <i>from</i> <i>NRC Region III</i> <i>IP-71002</i> <i>Inspection,</i> <i>and</i> <i><u>A.1-1 from</u></i> <i><u>NRC Letter</u></i> <i>dated</i> <i><u>March 26, 2013</u></i></p>

<p align="center">Table A-1 Davis-Besse License Renewal Commitments</p>				
Item Number	Commitment	Implementation Schedule	Source	Related LRA Section No./ Comments
29	<p>Enhance the Cranes and Hoists Inspection Program to:</p> <ul style="list-style-type: none"> • Include visual inspections for loose bolts and missing or loose nuts in crane, monorail and hoist inspection procedures at the same frequency as inspections of rails and structural components. 	<p><i>Prior to</i> <i><u>April 22, 2017</u></i> <i><u>October 22, 2016</u></i></p>	<p>LRA and <i>FENOC Letters</i> <i><u>L-11-153</u></i> <i>and</i> <i><u>L-13-160</u></i></p>	<p>A.1.10 B.2.10 and <i>Responses to</i> <i>NRC RAIs</i> <i>B.2.10-2 from</i> <i>NRC Letter</i> <i>dated</i> <i>April 20, 2011,</i> <i>and</i> <i>A.1-1 from</i> <i>NRC Letter</i> <i>dated</i> <i><u>March 26, 2013</u></i></p>

Table A-1
Davis-Besse License Renewal Commitments

Item Number	Commitment	Implementation Schedule	Source	Related LRA Section No./ Comments
30	<p>Enhance the Leak Chase Monitoring Program to:</p> <ul style="list-style-type: none"> • Include acceptance criteria such that measurement of leakage from any monitoring line exceeding 15 ml/min will be documented in the Corrective Action Program for evaluation and potential corrective actions. Evaluation will include consideration of more frequent monitoring. • Analyze collected leak chase drainage for pH monthly and for iron every six months. The initial acceptance criteria will be 7.0 to 8.0 for pH. The results for iron will be monitored and trended to insure that there is no indication of corrosion of the reinforcing bars in the walls or floor of the pool and pits. An acceptance criterion for the iron analyses will be developed after three years of measurements. Analyses that exceed the limits will be documented in the Corrective Action Program. • Perform the leak chase inspection and cleaning recurring preventive maintenance (PM) activity every 18 months. • Inspect once per year for leakage migrating through the accessible outside walls and floor (from the ceiling side) of the pool and pits. Document the inspection results and retain in plant records. Indication of leakage through the walls will be documented in the Corrective Action Program. 	<p><i>Prior to April 22, 2017 October 22, 2016</i></p>	<p>LRA and FENOC Letters L-11-153, L-11-238 and <u>L-13-160</u></p>	<p>A.1.25 B.2.25 and Responses to NRC RAIs B.2.25-5 from NRC Letter dated April 5, 2011, and B.2.25-7 and B.2.39-10 from NRC Letter dated July 21, 2011, and <u>A.1-1 from NRC Letter dated March 26, 2013</u></p>

Table A-1
Davis-Besse License Renewal Commitments

Item Number	Commitment	Implementation Schedule	Source	Related LRA Section No./ Comments
31	Incorporate reference to and the preventative actions of the Research Council for Structural Connections "Specification for Structural Joints Using ASTM A325 or A490 Bolts" into the Davis-Besse specifications and implementing procedures that address Davis-Besse structural bolting within the scope of license renewal.	<i>Prior to April 22, 2017 <u>October 22, 2016</u></i>	<i>FENOC Letters L-11-153 and <u>L-13-160</u></i>	<i>Responses to NRC RAIs B.2.39-8 from NRC Letter dated April 5, 2011, and <u>A.1-1 from NRC Letter dated March 26, 2013</u></i>
32	Enhance the Closed Cooling Water Chemistry program to: <ul style="list-style-type: none"> Document the results of periodic inspections of opportunity, performed when components are opened for maintenance, repair, or surveillance. Ensure that a representative sample of piping and components will be inspected on a 10-year interval, with the first inspection taking place prior to entering the period of extended operation. Ensure that component cooling water radiochemistry is sampled on a weekly interval to verify the integrity of the letdown coolers and seal return coolers. 	<i>Prior to April 22, 2017 <u>October 22, 2016</u></i>	<i>LRA and FENOC Letters L-11-153, L-11-354 and <u>L-13-160</u></i>	<i>A.1.8 B.2.8 and Responses to NRC RAIs B.2.8-1 from NRC Letter dated April 20, 2011, and Supplemental</i>

Table A-1
Davis-Besse License Renewal Commitments

Item Number	Commitment	Implementation Schedule	Source	Related LRA Section No./ Comments
				RAI 2.3.3.18-4 from telecom held with the NRC on November 9, 2011, and <u>A.1-1 from NRC Letter dated March 26, 2013</u>
33	<p><u>Phase 1</u> Perform the following actions to reduce or mitigate the refueling canal leaks inside containment:</p> <ol style="list-style-type: none"> 1. Select and implement a leak detection method to locate the leakage area. 2. Evaluate temporary and permanent repair methods to stop or significantly reduce the leakage, and implement a repair plan. <p><u>Phase 2</u> Perform the following actions to evaluate the impact of refueling canal leaks on concrete and reinforcing steel structures.</p>	<p>Phase 1: Action 1 prior to December 31, 2014</p> <p>Action 2 prior to December 31, <u>October 22,</u> 2016</p>	<p>FENOC Letters L-11-252 and L-13-160</p>	<p>Responses to NRC RAIs B.2.39-9 from NRC Letter dated July 27, 2011, and <u>A.1-1 from NRC Letter dated March 26, 2013</u></p>

Table A-1
Davis-Besse License Renewal Commitments

Item Number	Commitment	Implementation Schedule	Source	Related LRA Section No./ Comments
	<p>Discontinue core bores, testing and reinforcing steel inspections when indications of refueling canal leakage are no longer present:</p> <ol style="list-style-type: none"> 1. Perform a core bore in the south wall of the east-west section of the core flood pipe tunnel. <ol style="list-style-type: none"> a. Assess borated water degradation of the concrete by testing the core bore sample for compressive strength and by petrographic examination, and evaluate the results. b. Conduct a visual examination of the concrete and reinforcing steel to identify aging effects (e.g., concrete degradation or steel corrosion). Enter identified aging effects into the FENOC Corrective Action Program and evaluate in accordance with the requirements of the current licensing basis Maintenance Rule Program. 2. If leakage from the refueling canal has not been eliminated or resumes by the beginning of the period of extended operation, then evaluate the concrete structures in a manner similar to the way that they were evaluated under Phase 2, Action 1. However, use acceptance criteria from the American Concrete Institute (ACI) Report 349.3R for the evaluation. 3. If leakage from the refueling canal has not been eliminated or resumes during the period of extended operation, then 	<p>Phase 2:</p> <p>Action 1 prior to December 31, 2014</p> <p>Action 2 prior to December 31, 2023</p> <p>Action 3 – Ongoing</p>		

Table A-1
Davis-Besse License Renewal Commitments

Item Number	Commitment	Implementation Schedule	Source	Related LRA Section No./ Comments
	evaluate the concrete structures again in a manner similar to the way that they were evaluated under Phase 2, Action 2. Perform evaluations every ten years until the end of the period of extended operation.			
34	<p>Enhance the Bolting Integrity Program to:</p> <ul style="list-style-type: none"> Select an alternate stable lubricant that is compatible with the fastener material and the environment. A specific precaution against the use of compounds containing sulfur (sulfide), including molybdenum disulfide (MoS₂), as a lubricant will be included in the program. 	<p><i>Prior to April 22, 2017 October 22, 2016</i></p>	<p>LRA and FENOC Letters L-11-153 and L-13-160</p>	<p>A.1.4 B.2.4 and Responses to NRC RAIs B.2.4-3 from NRC Letter dated April 20, 2011, and A.1-1 from NRC Letter dated March 26, 2013</p>
35	<p>Perform the following actions for each of two examinations (Phase 1 and Phase 2) of the Containment Vessel in the sand pocket region:</p> <ul style="list-style-type: none"> Perform nondestructive examination (NDE) of the Containment Vessel from the outer surface at five areas of 	<p>Phase 1 prior to December 31, 2014</p>	<p>FENOC Letter L-11-252</p>	<p>Response to NRC RAI B.2.22-5 from NRC Letter dated</p>

Table A-1
Davis-Besse License Renewal Commitments

Item Number	Commitment	Implementation Schedule	Source	Related LRA Section No./ Comments
	<p>previously-identified groundwater in-leakage.</p> <ul style="list-style-type: none"> ○ Examine the vessel at a minimum of three vertical grid locations at 12 inches nominal horizontal spacing at each area. Examine the Containment Vessel at a minimum of three elevations: <ol style="list-style-type: none"> 1. approximately 3 inches below the existing grout-to-vessel interface in the sand pocket region; 2. at the existing grout-to-vessel interface level in the sand pocket region; and, 3. approximately 3 inches above the existing grout-to-vessel interface in the sand pocket region. • Compare the ultrasonic test (UT) thickness readings to minimum ASME Code vessel thickness requirements and to the results obtained during previous UT examinations of the Containment Vessel. Determine the need for maintenance or repair of the Containment Vessel based on the results and evaluation of the examinations. • Document the results of each of the two examinations in the work order system. Document and evaluate adverse conditions in accordance with the FENOC Corrective Action Program for an evaluation of potential degradation of the steel Containment Vessel thickness over the longer term. 	<p>and</p> <p>Phase 2 prior to December 31, 2025</p>		<p>July 21, 2011</p>

Table A-1
Davis-Besse License Renewal Commitments

Item Number	Commitment	Implementation Schedule	Source	Related LRA Section No./ Comments
36	<p>Perform the following actions related to the Containment Vessel sand pocket region each refueling outage:</p> <ul style="list-style-type: none"> • Perform visual inspection of 100 percent of the accessible areas of the wetted outer surface of the Containment Vessel in the sand pocket region. • Perform visual inspection of accessible dry areas of the outer surface of the Containment Vessel in the sand pocket region and the areas above the grout-to-steel interface up to Elevation 566 feet + 3 inches, - 1 inch. • Perform visual inspection for deterioration (e.g., missing or damaged grout) of accessible grout and the containment exterior moisture barrier in the sand pocket area. • Perform opportunistic visual inspections of inaccessible areas of the Containment Vessel in the sand pocket region when such areas are made accessible. • Perform opportunistic visual inspections for deterioration (e.g., missing or damaged grout) of inaccessible grout in the sand pocket region when such areas are made accessible. Inaccessible grout is the grout below the normally-exposed surface of the grout in the sand pocket area. • Address issues of pitting or microbiologically-influenced corrosion (MIC), and degraded grout, moisture barrier or sealant 	Ongoing	FENOC Letters L-11-252 and L-11-354	<p>Response to NRC RAI B.2.22-5 from NRC Letter dated July 21, 2011</p> <p>and Supplemental RAI B.2.22-5 from telecons held with the NRC on October 5 and November 14, 2011</p>

Table A-1
Davis-Besse License Renewal Commitments

Item Number	Commitment	Implementation Schedule	Source	Related LRA Section No./ Comments
	<p>identified during the inspections using the FENOC Corrective Action Program.</p> <ul style="list-style-type: none"> Sample the water in the sand pocket region when sufficient volumes are available. The number of sampled water volumes will be determined by the number of water volumes observed and the size of those water volumes. Analyze the sample(s) for pH, chlorides, iron and sulfates. Treat or wash (or a combination thereof) the sand pocket area to reduce measured chloride concentrations to less than 250 parts per million (ppm) if the concentration of chlorides in a sample exceeds 250 ppm. Note: Water samples may be taken at different times during each outage. Engineering judgment may be used to determine the priority of the chemical analyses to be performed if sufficient water is not available in a given sample for all analyses. 			

Table A-1
Davis-Besse License Renewal Commitments

Item Number	Commitment	Implementation Schedule	Source	Related LRA Section No./ Comments
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 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. 	<p>Phase 1 prior to December 31, 2014</p> <p align="center">and</p> <p>Phase 2 prior to December 31, 2020</p>	<p>FENOC Letters L-11-153 and L-11-238</p>	<p>Responses to NRC RAIs B.2.39-2 from NRC Letter dated April 5, 2011, and B.2.39-10 from NRC Letter dated July 21, 2011</p>

<p align="center">Table A-1 Davis-Besse License Renewal Commitments</p>				
Item Number	Commitment	Implementation Schedule	Source	Related LRA Section No./ Comments
38	<p>Evaluate the concrete cracking observed on the underside of the spent fuel pool for necessary repairs.</p> <p>Note: A core bore of the Room 109 ceiling will be performed by the end of 2014 (see license renewal commitment 37). Degradation identified from the samples will be entered into the FENOC Corrective Action Program. The condition of the concrete and the reinforcing steel will be evaluated at that time to assist in determining what repairs, if any, need to be made to the underside of the spent fuel pool concrete. The criterion for determining the need to repair the cracking will be the continued capability of the structures to perform their intended functions during the period of extended operation.</p>	<p><i>Prior to April 22, 2017 <u>October 22, 2016</u></i></p>	<p><i>FENOC Letters L-11-153, L-11-238 <u>and</u> <u>L-13-160</u></i></p>	<p><i>Responses to NRC RAIs B.2.39-2 from NRC Letter dated April 5, 2011, and B.2.39-10 from NRC Letter dated July 21, 2011, and A.1-1 from NRC Letter dated <u>March 26, 2013</u></i></p>

Table A-1
Davis-Besse License Renewal Commitments

Item Number	Commitment	Implementation Schedule	Source	Related LRA Section No./ Comments
39	<p>Address the potential for borated water degradation of the steel containment vessel through the following actions:</p> <ul style="list-style-type: none"> Access the inside surface of the embedded steel containment. A core bore will be completed by the end of 2014 (Phase 1). If necessary, a second core bore will be completed by the end of 2020 (Phase 2). If there is evidence of the presence of borated water in contact with the steel containment vessel, conduct non-destructive testing (NDT) to determine what effect, if any, the borated water has had on the steel containment vessel. Based on the results of NDT, perform a study to determine the effect through the period of extended operation of any identified loss of thickness in the steel containment due to exposure to borated water. 	<p>Phase 1 prior to December 31, 2014 and Phase 2 prior to December 31, 2020</p>	<p>FENOC Letters L-11-153 and L-11-237</p>	<p>Responses to NRC RAIs B.2.22-2 from NRC Letter dated April 5, 2011, and B.2.22-6 from NRC Letter dated July 27, 2011</p>

Table A-1
Davis-Besse License Renewal Commitments

Item Number	Commitment	Implementation Schedule	Source	Related LRA Section No./ Comments
40	Implement the Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Program as described in LRA Section B.2.41.	<i>Prior to April 22, 2017 <u>October 22, 2016</u></i>	LRA and <i>FENOC Letters L-11-153 and <u>L-13-160</u></i>	A.1.41 B.2.41 and <i>Responses to NRC RAIs 3.3.2.2.5-1 and 3.3.2.71-2 from NRC Letter dated April 20, 2011, and <u>A.1-1 from NRC Letter dated March 26, 2013</u></i>

Table A-1
Davis-Besse License Renewal Commitments

Item Number	Commitment	Implementation Schedule	Source	Related LRA Section No./ Comments
41	Establish a preventive maintenance task to periodically replace the flexible connections exposed to fuel oil in the Fuel Oil System.	<i>Prior to April 22, 2017 October 22, 2016</i>	<i>FENOC Letters L-11-166 and L-13-160</i>	<i>Response to NRC RAIs 3.3.2.3.12-2 from NRC Letter dated May 2, 2011, and A.1-1 from NRC Letter dated March 26, 2013</i>
42	Enhance the Fatigue Monitoring Program to: <ul style="list-style-type: none"> Evaluate additional plant-specific component locations in the reactor coolant pressure boundary that may be more limiting than those considered in NUREG/CR-6260. This evaluation will include identification of the most limiting fatigue location exposed to reactor coolant for each material type (i.e., CS, LAS, SS, and NBA) and that each bounding material/location will be evaluated for the effects of the reactor coolant environment on fatigue usage. Nickel based alloy items will be evaluated using NUREG/CR-6909. Submit the evaluation to the NRC one year prior to the period of extended operation. 	Prior to April 22, 2016	LRA and FENOC Letter L-11-166	A.1.16 B.2.16 and Response to NRC RAI B.2.16-2 from NRC Letter dated April 20, 2011

<p align="center">Table A-1 Davis-Besse License Renewal Commitments</p>				
Item Number	Commitment	Implementation Schedule	Source	Related LRA Section No./ Comments
43	Ensure that the current station operating experience review process includes future reviews of plant-specific and industry operating experience to confirm the effectiveness of the License Renewal aging management programs, to determine the need for programs to be enhanced, or indicate a need to develop new aging management programs.	<i>Prior to April 22, 2017 <u>October 22, 2016</u></i>	<i>FENOC Letters L-11-188 and <u>L-13-160</u></i>	<i>Responses to NRC RAIs B.1.4-1 from NRC Letter dated May 19, 2011, and A.1-1 from NRC Letter dated <u>March 26, 2013</u></i>

<p align="center">Table A-1 Davis-Besse License Renewal Commitments</p>				
Item Number	Commitment	Implementation Schedule	Source	Related LRA Section No./ Comments
44	Cathodically protect the EDG fuel oil storage tanks (DB-T153-1 and DB-T153-2) and the in-scope fuel oil and Service Water buried piping in accordance with NACE SP0169-2007 or NACE RP0285-2002.	<i>Prior to <u>April 22, 2017</u> <u>October 22, 2016</u></i>	<i>FENOC Letters L-11-203, L-11-218 <u>and</u> <u>L-13-160</u></i>	<i>Responses to NRC RAIs B.2.7-1 from NRC Letter dated April 20, 2011, as modified per telecon with the NRC held on June 7, 2011, <u>and</u> <u>A.1-1 from</u> <u>NRC Letter</u> <u>dated</u> <u>March 26, 2013</u></i>

<p align="center">Table A-1 Davis-Besse License Renewal Commitments</p>				
Item Number	Commitment	Implementation Schedule	Source	Related LRA Section No./ Comments
45	Implement the Nuclear Safety-Related Coatings Program as described in LRA Section B.2.42.	<i>Prior to April 22, 2017 <u>October 22, 2016</u></i>	<i>FENOC Letters L-11-203, L-11-218 <u>and</u> <u>L-13-160</u></i>	A.1.42 B.2.42 and <i>Responses to NRC RAIs XI.S8-1 from NRC Letter dated April 5, 2011, <u>and</u> <u>A.1-1 from</u> <u>NRC Letter</u> <u>dated</u> <u>March 26, 2013</u></i>

<p align="center">Table A-1 Davis-Besse License Renewal Commitments</p>				
Item Number	Commitment	Implementation Schedule	Source	Related LRA Section No./ Comments
46	Implement the Shield Building Monitoring Program as described in LRA Section B.2.43.	<i>Prior to April 22, 2017 <u>October 22, 2016</u></i>	LRA and <i>FENOC Letters L-12-028 and <u>L-13-160</u></i>	A.1.43 B.2.43 and <i>Responses to NRC RAIs B.2.16-2 from NRC Letter dated December 27, 2012, and <u>A.1-1 from NRC Letter dated March 26, 2013</u></i>

Table A-1
Davis-Besse License Renewal Commitments

Item Number	Commitment	Implementation Schedule	Source	Related LRA Section No./ Comments
47	<p>Enhance the Inservice Inspection (ISI) Program - IWE to:</p> <ul style="list-style-type: none"> Include surface examinations to monitor for cracking of containment stainless steel penetration sleeves, dissimilar metal welds, bellows, and steel components that are subject to cyclic loading but have no current licensing basis fatigue analysis. The inspection sample size will include 10 percent of the containment penetration population that are subject to cyclic loading but have no current licensing basis fatigue analysis. Penetrations included in the inspection sample will be scheduled for examination in each 10-year ISI interval that occurs during the period of extended operation. Should fatigue analyses be performed in the future for the subject containment penetrations, the surface examinations will no longer be required. 	<p><i>Prior to</i> <i><u>April 22, 2017</u></i> <i><u>October 22, 2016</u></i></p>	<p>LRA and <i>FENOC</i> <i>Letters</i> <i>L-11-238,</i> <i>L-11-292</i> <i>and</i> <i><u>L-13-160</u></i></p>	<p>A.1.22 B.2.22 and <i>Responses to</i> <i>NRC RAIs</i> <i>B.2.22-7 from</i> <i>NRC Letter</i> <i>dated</i> <i>July 21, 2011,</i> <i>and</i> <i>Supplemental</i> <i>RAI B.2.22-7</i> <i>from NRC</i> <i>telecons</i> <i>held on</i> <i>September 13</i> <i>and 16, 2011,</i> <i>and</i> <i><u>A.1-1 from</u></i> <i><u>NRC Letter</u></i> <i><u>dated</u></i> <i><u>March 26, 2013</u></i></p>

<p>Table A-1 Davis-Besse License Renewal Commitments</p>				
Item Number	Commitment	Implementation Schedule	Source	Related LRA Section No./ Comments
48	Complete an investigation and needed repairs or modification of the degraded portion of the safety-related intake canal embankment.	<i>Prior to April 22, 2017 <u>October 22, 2016</u></i>	<i>FENOC Letters L-11-238 <u>and</u> <u>L-13-160</u></i>	<i>Responses to NRC RAIs B.2.40-2 from NRC Letter dated July 21, 2011, <u>and</u> <u>A.1-1 from</u> <u>NRC Letter</u> <u>dated</u> <u>March 26, 2013</u></i>

<p align="center">Table A-1 Davis-Besse License Renewal Commitments</p>				
Item Number	Commitment	Implementation Schedule	Source	Related LRA Section No./ Comments
49	<p>Enhance the Nickel-Alloy Management Program to:</p> <ul style="list-style-type: none"> Provide for inspection of dissimilar metal butt welds in accordance with the requirements of ASME Code Case N-770-1, "Alternative Examination Requirements and Acceptance Standards for Class 1 PWR Piping and Vessel Nozzle Butt Welds Fabricated with UNS N06082 or UNS W86182 Weld Filler Material With or Without Application of Listed Mitigation Activities, Section XI, Division 1," as modified by the Code of Federal Regulations, 10 CFR 50.55a(g)(6)(ii)(F). 	<p><i>Prior to</i> <i>April 22, 2017</i> <i><u>October 22, 2016</u></i></p>	<p><i>FENOC</i> <i>Letters</i> <i>L-11-238</i> <i>and</i> <i><u>L-13-160</u></i></p>	<p>A.1.28 B.2.28 and <i>Responses to</i> <i>NRC RAIs</i> <i>B.2.28-1 from</i> <i>NRC Letter</i> <i>dated</i> <i>July 27, 2011,</i> <i>and</i> <i><u>A.1-1 from</u></i> <i><u>NRC Letter</u></i> <i>dated</i> <i><u>March 26, 2013</u></i></p>