

Davis-BesseNPEm Resource

From: dorts@firstenergycorp.com
Sent: Monday, February 27, 2012 4:01 PM
To: CuadradoDeJesus, Samuel
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Subject: Davis-Besse License Renewal Commitment List through LRA Amendment 23 -- PDF and WORD Versions
Attachments: DBLR Commitment List thru Amend 23 Final.pdf; DBLR Commitment List thru Amend 23 Final.doc

As requested...

Steve Dort
DBNPS License Renewal

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Hearing Identifier: Davis_BesseLicenseRenewal_Saf_NonPublic
Email Number: 3578

Mail Envelope Properties (OF917C7D41.D56922AC-ON852579B1.00735393-852579B1.0073793F)

Subject: Davis-Besse License Renewal Commitment List through LRA Amendment 23 --
PDF and WORD Versions
Sent Date: 2/27/2012 4:01:17 PM
Received Date: 2/27/2012 4:00:30 PM
From: dorts@firstenergycorp.com

Created By: dorts@firstenergycorp.com

Recipients:
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Tracking Status: None

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Files	Size	Date & Time
MESSAGE	651	2/27/2012 4:00:30 PM
DBLR Commitment List thru Amend 23 Final.pdf	100835	
DBLR Commitment List thru Amend 23 Final.doc	279104	

Options
Priority: Standard
Return Notification: No
Reply Requested: No
Sensitivity: Normal
Expiration Date:
Recipients Received:

Davis Besse Nuclear Power Station, Unit No. 1

License Renewal Future Commitments

(Through LRA Amendment 23)

Table A-1 Davis-Besse License Renewal Commitments				
Item Number	Commitment	Implementation Schedule	Source	Related LRA Section No./ Comments
1	Enhance the Aboveground Steel Tanks Inspection Program to: 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.	Prior to April 22, 2017	LRA and FENOC Letter L-11-153	A.1.2 B.2.2 Response to NRC RAI B.2.2-1 from NRC Letter dated April 20, 2011
2	Implement the Boral® Monitoring Program as described in LRA Section B.2.5.	April 22, 2017	LRA	A.1.5 B.2.5
3	Enhance the Buried Piping and Tanks Inspection Program to: - 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	Prior to April 22, 2017	LRA and FENOC Letter L-11-153	A.1.7 B.2.7 and Response to NRC RAI B.2.7-1 from NRC Letter

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	protection voltage and current monthly to determine the effectiveness of cathodic protection systems and, thereby, the effectiveness of corrosion mitigation. Trend voltage, current, and ground potential readings and evaluate for adverse changes. - 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> Note 1: Preventive actions are categorized as follows: A. - Cathodic protection, in accordance with 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	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 %			dated April 20, 2011
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 %																	

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	during that 5 years or cathodic protection was operational for 90% of the time since the last inspection conducted under this program. 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 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. D. – Criteria of A, B, and C not met. Note 2: Only one inspection is required for piping which is both safety-related and contains hazardous material. - 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 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. - Require that a visual and volumetric inspection of the underground piping within the borated water piping trench will			

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	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. - 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 .	April 22, 2017	LRA	A.1.9 B.2.9
5	Implement the Electrical Cable Connections Not Subject to 10 CFR 50.49 Environmental Qualification Requirements Inspection as described in LRA Section B.2.11. Enhance the Electrical Cable Connections Not Subject to 10 CFR 50.49 Environmental Qualification Requirements Inspection to: Include high voltage connections to confirm the absence of aging effects for metallic electrical connections.	Prior to April 22, 2017	LRA and FENOC Letter L-11-134	A.1.11 B.2.11 Response to NRC RAI 3.6-3 from NRC Letter dated April 5, 2011

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Item Number	Commitment	Implementation Schedule	Source	Related LRA Section No./ Comments
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 .	April 22, 2017	LRA	A.1.12 B.2.12
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 .	April 22, 2017	LRA	A.1.13 B.2.13
8	Enhance the External Surfaces Monitoring Program to: • 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 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. • Perform inspection of the control room emergency ventilation	Prior to April 22, 2017	LRA and FENOC Letters L-11-153, L-11-166 and L-11-238	A.1.15 B.2.15 Responses to NRC RAIs 3.3.2.2.5-1 and B.2.2-2 from NRC Letter dated April 20, 2011, NRC RAI 3.3.2-2 from NRC Letter dated May 2, 2011, RAI 3.3.2.2.5-2 from NRC Letter dated July 12, 2011,

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Item Number	Commitment	Implementation Schedule	Source	Related LRA Section No./ Comments
	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 inspection and walkdown documentation in plant records.			and Supplemental RAI OIN-352 from NRC Region III IP-71002 Inspection
9	Enhance the Fatigue Monitoring Program to: • 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	Prior to April 22, 2017	LRA and FENOC Letter L-11-166	A.1.16 B.2.16 Responses to NRC RAIs B.2.16-3, B.2.16-4 and B.2.16-5 from NRC Letter dated

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Item Number	Commitment	Implementation Schedule	Source	Related LRA Section No./ Comments
	period of extended operation, including environmental effects where applicable			April 20, 2011
10	Enhance the Fire Water Program to: • Perform periodic ultrasonic testing for wall thickness of representative above-ground water suppression piping that is 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. • 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	April 22, 2017	LRA	A.1.18 B.2.18

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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	Implement the Inaccessible Power Cables Not Subject to 10 CFR 50.49 Environmental Qualification Requirements Program as described in LRA Section B.2.21. Enhance the Inaccessible Power Cables Not Subject to 10 CFR 50.49 Environmental Qualification Requirements Program to: • 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). • 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	Prior to April 22, 2017 FENOC Letter L-11-134	A.1.21 B.2.21 Responses to NRC RAIs B.2.21-1 and B.2.21-3 from NRC Letter dated April 5, 2011	

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Item Number	Commitment	Implementation Schedule	Source	Related LRA Section No./ Comments
	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	Enhance the Masonry Wall Inspection to: - 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 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). - 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.	Prior to April 22, 2017	LRA and FENOC Letter L-11-153	A.1.27 B.2.27 Response to NRC RAI B.2.39-5 from NRC Letter dated April 5, 2011

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Item Number	Commitment	Implementation Schedule	Source	Related LRA Section No./ Comments
13	Implement the One-Time Inspection as described in LRA Section B.2.30. Enhance the One-Time Inspection to: 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.	Prior to April 22, 2017	LRA and FENOC Letters L-11-166, L-11-237, and L-11-252	A.1.30 B.2.30 Responses to NRC RAI 3.3.2.2.4.3-1 from NRC Letter dated May 2, 2011, and Supplemental Question – Makeup Pump Casing Inspections
14	Implement the PWR Reactor Vessel Internals Program as described in LRA Section B.2.32 .	April 22, 2017	LRA	A.1.32 B.2.32
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 Response to NRC RAI B.2.32-1 from NRC Letter dated July 11, 2011

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Item Number	Commitment	Implementation Schedule	Source	Related LRA Section No./ Comments
16	Enhance the Reactor Head Closure Studs Program as follows: - 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 for the reactor head closure stud assemblies will be included in the program. - 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.	April 22, 2017	LRA and FENOC Letter L-11-218	A.1.34 B.2.34 Response to NRC RAI B.2.34-1 from NRC Letter dated June 20, 2011
17	Enhance the Reactor Vessel Surveillance Program as follows: The Capsule Insertion and Withdrawal Schedule for Davis-Besse will be revised to schedule testing of the TE1-C capsule.	April 22, 2017	LRA	A.1.35 B.2.35
18	Implement the Selective Leaching Inspection as described in LRA Section B.2.36 .	April 22, 2017	LRA	A.1.36 B.2.36
19	Implement the Small Bore Class 1 Piping Inspection as described in LRA Section B.2.37 .	Completed within the six year period prior to April 22, 2017.	LRA and FENOC Letter L-11-153	A.1.37 B.2.37 Response to NRC RAI B.2.37-2 from NRC Letter dated April 20, 2011

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Item Number	Commitment	Implementation Schedule	Source	Related LRA Section No./ Comments
20	Enhance the Structures Monitoring Program to: • 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. Require the use of the FENOC Corrective Action Program for identified concrete or steel degradation. • 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	Prior to April 22, 2017	LRA FENOC Letters L-11-153, L-11-237, L-11-292, and L-11-317	A.1.39 B.2.39 Responses to NRC RAIs B.2.39-4, B.2.39-5, B.2.39-6 and B.2.39-7 from NRC Letter dated April 5, 2011, B.2.39-11 and 3.5.2.3.12-4 from NRC Letter dated July 21, 2011, Supplemental RAI B.2.39-11 from telecon held with the NRC on September 13, 2011, and Supplemental RAI OIN-380

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Item Number	Commitment	Implementation Schedule	Source	Related LRA Section No./ Comments
	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. - Revise to 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, coatings, and waterproofing membranes. 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. - 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			from Region III IP-71002 Inspection

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	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 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. - Identify that: - 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.			
21	Enhance the Water Control Structures Inspection to: - 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	Prior to April 22, 2017	LRA and FENOC Letter	A.1.40 B.2.40 Responses to NRC RAI

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	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. - 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. - 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		L-11-153 and L-11-292	B.2.39-6 from NRC Letter dated April 5, 2011, and Supplemental RAI OIN-379 from Region III IP-71002 Inspection

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	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.	April 22, 2017	N/A	N/A
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 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.	Prior to April 22, 2017	LRA and FENOC Letters L-11-107 and L-11-203	A.2.3.4.2 A.2.7.4 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,

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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.	Prior to April 22, 2017	LRA and FENOC Letter L-11-166	2011 A.1 Response to NRC RAI 3.0 from NRC Letter dated May 2, 2011
25	Enhance the Steam Generator Tube Integrity Program to: 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 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	Prior to April 22, 2017	LRA and FENOC Letter L-12-001	A.1.38 B.2.38 Response to NRC RAI 3.1.2.2.16-3 from NRC Letter dated December 27, 2011

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Item Number	Commitment	Implementation Schedule	Source	Related LRA Section No./ Comments
	acceptance criteria for the gross visual inspections and the eddy-current inspections as no indication of cracking or relevant conditions of degradation.			
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 RAI B.2.39-3 from NRC Letter dated April 5, 2011, RAI B.2.39-11 from NRC Letter dated July 21, 2011, and 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	Prior to April 22, 2017	FENOC Letter L-11-134	Response to NRC RAI B.2.1-1 from NRC Letter dated April 5, 2011

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Davis-Besse License Renewal Commitments

Item Number	Commitment	Implementation Schedule	Source	Related LRA Section No./ Comments
	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.”			
28	Enhance the Fuel Oil Chemistry Program to: - 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) 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. - Require that biological activity be monitored and trended at least quarterly.	Prior to April 22, 2017	LRA and FENOC Letters L-11-134 and L-11-238	A.1.20 B.2.20 Responses to NRC RAIs B.2.20-1 and B.2.20-2 from NRC Letter dated April 5, 2011, and Supplemental RAI OIN-368 from NRC Region III IP-71002 Inspection
29	Enhance the Cranes and Hoists Inspection Program to: 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.	Prior to April 22, 2017	LRA and FENOC Letter L-11-153	A.1.10 B.2.10 Response to NRC RAI B.2.10-2 from NRC Letter dated

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Davis-Besse License Renewal Commitments

Item Number	Commitment	Implementation Schedule	Source	Related LRA Section No./ Comments
				April 20, 2011
30	Enhance the Leak Chase Monitoring Program to: • 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.	Prior to April 22, 2017 LRA and FENOC Letters L-11-153 and L-11-238	A.1.25 B.2.25 Responses to NRC RAI B.2.25-5 from NRC Letter dated April 5, 2011 and RAI B.2.25-7 and B.2.39-10 from NRC Letter dated July 21, 2011	
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.	Prior to April 22, 2017	FENOC Letter L-11-153	Response to NRC RAI B.2.39-8 from NRC Letter dated April 5, 2011

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Davis-Besse License Renewal Commitments

Item Number	Commitment	Implementation Schedule	Source	Related LRA Section No./ Comments
32	Enhance the Closed Cooling Water Chemistry program to: - 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.	Prior to April 22, 2017	LRA and FENOC Letters L-11-153 and L-11-354	A.1.8 B.2.8 Response to NRC RAI B.2.8-1 from NRC Letter dated April 20, 2011 and Supplemental RAI 2.3.3.18-4 from telecom held with the NRC on November 9, 2011
33	<u>Phase 1</u> Perform the following actions to reduce or mitigate the refueling canal leaks inside containment: - Select and implement a leak detection method to locate the leakage area. - Evaluate temporary and permanent repair methods to stop or significantly reduce the leakage, and implement a repair plan. <u>Phase 2</u> Perform the following actions to evaluate the impact of refueling	Phase 1: Action 1 prior to December 31, 2014 Action 2 prior to December 31, 2016 Phase 2:	FENOC Letter L-11-252	Response to NRC RAI B.2.39-9 from NRC Letter dated July 27, 2011

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Davis-Besse License Renewal Commitments

Item Number	Commitment	Implementation Schedule	Source	Related LRA Section No./ Comments
	canal leaks on concrete and reinforcing steel structures. Discontinue core bores, testing and reinforcing steel inspections when indications of refueling canal leakage are no longer present: 1. Perform a core bore in the south wall of the east-west section of the core flood pipe tunnel. 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 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.	Action 1 prior to December 31, 2014 Action 2 prior to December 31, 2023 Action 3 – Ongoing		

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Davis-Besse License Renewal Commitments

Item Number	Commitment	Implementation Schedule	Source	Related LRA Section No./ Comments
34	Enhance the Bolting Integrity Program to: 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.	Prior to April 22, 2017	LRA and FENOC Letter L-11-153	A.1.4 B.2.4 Response to NRC RAI B.2.4-3 from NRC Letter dated April 20, 2011
35	Perform the following actions for each of two examinations (Phase 1 and Phase 2) of the Containment Vessel in the sand pocket region: - Perform nondestructive examination (NDE) of the Containment Vessel from the outer surface at five areas of previously-identified groundwater in-leakage. - 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: - approximately 3 inches below the existing grout-to-vessel interface in the sand pocket region; - at the existing grout-to-vessel interface level in the sand pocket region; and, - 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	Phase 1 prior to December 31, 2014 and Phase 2 prior to December 31, 2025	FENOC Letter L-11-252	Response to NRC RAI B.2.22-5 from NRC Letter dated July 21, 2011

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Davis-Besse License Renewal Commitments

Item Number	Commitment	Implementation Schedule	Source	Related LRA Section No./ Comments
	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.			
36	Perform the following actions related to the Containment Vessel sand pocket region each refueling outage: - 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	Ongoing	FENOC Letter L-11-252 and L-11-354	Response to NRC RAI B.2.22-5 from NRC Letter dated July 21, 2011 and Supplemental RAI B.2.22-5 from telecons held with the NRC on October 5 and November 14, 2011

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Davis-Besse License Renewal Commitments

Item Number	Commitment	Implementation Schedule	Source	Related LRA Section No./ Comments
	corrosion (MIC), and degraded grout, moisture barrier or sealant identified during the inspections using the FENOC Corrective Action Program. 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.			
37	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).	Phase 1 prior to December 31, 2014 and Phase 2 prior to December 31, 2020	FENOC Letters L-11-153 and L-11-238	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

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Davis-Besse License Renewal Commitments

Item Number	Commitment	Implementation Schedule	Source	Related LRA Section No./ Comments
	- 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.			
38	Evaluate the concrete cracking observed on the underside of the spent fuel pool for necessary repairs. 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.	Prior to April 22, 2017	FENOC Letters L-11-153 and L-11-238	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
39	Address the potential for borated water degradation of the steel containment vessel through the following actions: 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	Phase 1 prior to December 31, 2014 and Phase 2 prior to December 31,	FENOC Letters L-11-153 and L-11-237	Responses to NRC RAI B.2.22-2 from NRC Letter dated April 5, 2011, and

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Davis-Besse License Renewal Commitments

Item Number	Commitment	Implementation Schedule	Source	Related LRA Section No./ Comments
	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.	2020		B.2.22-6 from NRC Letter dated July 27, 2011
40	Implement the Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Program as described in LRA Section B.2.41.	Prior to April 22, 2017	LRA and FENOC Letter L-11-153	A.1.41 B.2.41 Responses to NRC RAIs 3.3.2.2.5-1 and 3.3.2.71-2 from NRC Letter dated April 20, 2011
41	Establish a preventive maintenance task to periodically replace the flexible connections exposed to fuel oil in the Fuel Oil System.	Prior to April 22, 2017	FENOC Letter L-11-166	Response to NRC RAI 3.3.2.3.12-2 from NRC Letter dated May 2, 2011
42	Enhance the Fatigue Monitoring Program to: 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	Prior to April 22, 2016	LRA and FENOC Letter	A.1.16 B.2.16 Response to NRC RAI

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Davis-Besse License Renewal Commitments

Item Number	Commitment	Implementation Schedule	Source	Related LRA Section No./ Comments
	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.		L-11-166	B.2.16-2 from NRC Letter dated April 20, 2011
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.	Prior to April 22, 2017	FENOC Letter L-11-188	Response to NRC RAI B.1.4-1 from NRC Letter dated May 19, 2011
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.	Prior to April 22, 2017	FENOC Letter L-11-203	Response to NRC RAI B.2.7-1 from NRC Letter dated April 20, 2011, as modified per telecon with the NRC held on June 7, 2011
45	Implement the Nuclear Safety-Related Coatings Program as described in LRA Section B.2.42.	Prior to April 22, 2017	FENOC Letter L-11-203	Response to NRC RAI XI.S8-1 from NRC Letter dated April 5, 2011

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Davis-Besse License Renewal Commitments

Item Number	Commitment	Implementation Schedule	Source	Related LRA Section No./ Comments
46	Not used.			
47	Enhance the Inservice Inspection (ISI) Program - IWE to: 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.	Prior to April 22, 2017	LRA and FENOC Letter L-11-238 and L-11-292	A.1.22 B.2.22 Responses to NRC RAI B.2.22-7 from NRC Letter dated July 21, 2011, and Supplemental RAI B.2.22-7 from NRC telecons held on September 13 and 16, 2011
48	Complete an investigation and needed repairs or modification of the degraded portion of the safety-related intake canal embankment.	Prior to April 22, 2017	FENOC Letter L-11-238	Response to NRC RAI B.2.40-2 from NRC Letter dated July 21, 2011

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Davis-Besse License Renewal Commitments

Item Number	Commitment	Implementation Schedule	Source	Related LRA Section No./ Comments
49	Enhance the Nickel-Alloy Management Program to: 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).	Prior to April 22, 2017	FENOC Letter L-11-238	A.1.28 B.2.28 Response to NRC RAI B.2.28-1 from NRC Letter dated July 27, 2011

Davis Besse Nuclear Power Station, Unit No. 1

License Renewal Future Commitments

(Through LRA Amendment 23)

Table A-1 Davis-Besse License Renewal Commitments				
Item Number	Commitment	Implementation Schedule	Source	Related LRA Section No./ Comments
1	Enhance the Aboveground Steel Tanks Inspection Program to: • 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.	Prior to April 22, 2017	LRA and FENOC Letter L-11-153	A.1.2 B.2.2 Response to NRC RAI B.2.2-1 from NRC Letter dated April 20, 2011
2	Implement the Boral® Monitoring Program as described in LRA Section B.2.5 .	April 22, 2017	LRA	A.1.5 B.2.5
3	Enhance the Buried Piping and Tanks Inspection Program to: • 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	Prior to April 22, 2017	LRA and FENOC Letter L-11-153	A.1.7 B.2.7 and Response to NRC RAI B.2.7-1 from NRC Letter

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

Item Number	Commitment	Implementation Schedule	Source	Related LRA Section No./ Comments															
	protection voltage and current monthly to determine the effectiveness of cathodic protection systems and, thereby, the effectiveness of corrosion mitigation. Trend voltage, current, and ground potential readings and evaluate for adverse changes. - 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> Note 1: Preventive actions are categorized as follows: A. - Cathodic protection, in accordance with 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	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 %			dated April 20, 2011
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 %																	

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Davis-Besse License Renewal Commitments

Item Number	Commitment	Implementation Schedule	Source	Related LRA Section No./ Comments
	during that 5 years or cathodic protection was operational for 90% of the time since the last inspection conducted under this program. 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 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. D. – Criteria of A, B, and C not met. Note 2: Only one inspection is required for piping which is both safety-related and contains hazardous material. • 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 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. • Require that a visual and volumetric inspection of the underground piping within the borated water piping trench will			

Table A-1
Davis-Besse License Renewal Commitments

Item Number	Commitment	Implementation Schedule	Source	Related LRA Section No./ Comments
	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. - 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 .	April 22, 2017	LRA	A.1.9 B.2.9
5	Implement the Electrical Cable Connections Not Subject to 10 CFR 50.49 Environmental Qualification Requirements Inspection as described in LRA Section B.2.11. Enhance the Electrical Cable Connections Not Subject to 10 CFR 50.49 Environmental Qualification Requirements Inspection to: Include high voltage connections to confirm the absence of aging effects for metallic electrical connections.	Prior to April 22, 2017	LRA and FENOC Letter L-11-134	A.1.11 B.2.11 Response to NRC RAI 3.6-3 from NRC Letter dated April 5, 2011

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Davis-Besse License Renewal Commitments

Item Number	Commitment	Implementation Schedule	Source	Related LRA Section No./ Comments
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 .	April 22, 2017	LRA	A.1.12 B.2.12
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 .	April 22, 2017	LRA	A.1.13 B.2.13
8	Enhance the External Surfaces Monitoring Program to: • 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 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. • Perform inspection of the control room emergency ventilation	Prior to April 22, 2017	LRA and FENOC Letters L-11-153, L-11-166 and L-11-238	A.1.15 B.2.15 Responses to NRC RAIs 3.3.2.2.5-1 and B.2.2-2 from NRC Letter dated April 20, 2011, NRC RAI 3.3.2-2 from NRC Letter dated May 2, 2011, RAI 3.3.2.2.5-2 from NRC Letter dated July 12, 2011,

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Item Number	Commitment	Implementation Schedule	Source	Related LRA Section No./ Comments
	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 inspection and walkdown documentation in plant records.			and Supplemental RAI OIN-352 from NRC Region III IP-71002 Inspection
9	Enhance the Fatigue Monitoring Program to: • 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	Prior to April 22, 2017	LRA and FENOC Letter L-11-166	A.1.16 B.2.16 Responses to NRC RAIs B.2.16-3, B.2.16-4 and B.2.16-5 from NRC Letter dated

Table A-1
Davis-Besse License Renewal Commitments

Item Number	Commitment	Implementation Schedule	Source	Related LRA Section No./ Comments
	period of extended operation, including environmental effects where applicable			April 20, 2011
10	Enhance the Fire Water Program to: • Perform periodic ultrasonic testing for wall thickness of representative above-ground water suppression piping that is 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. • 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	April 22, 2017	LRA	A.1.18 B.2.18

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	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	Implement the Inaccessible Power Cables Not Subject to 10 CFR 50.49 Environmental Qualification Requirements Program as described in LRA Section B.2.21. Enhance the Inaccessible Power Cables Not Subject to 10 CFR 50.49 Environmental Qualification Requirements Program to: • 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). • 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	Prior to April 22, 2017	LRA and FENOC Letter L-11-134	A.1.21 B.2.21 Responses to NRC RAIs B.2.21-1 and B.2.21-3 from NRC Letter dated April 5, 2011

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	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	Enhance the Masonry Wall Inspection to: - 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 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). - 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.	Prior to April 22, 2017	LRA and FENOC Letter L-11-153	A.1.27 B.2.27 Response to NRC RAI B.2.39-5 from NRC Letter dated April 5, 2011

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13	Implement the One-Time Inspection as described in LRA Section B.2.30. Enhance the One-Time Inspection to: • 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.	Prior to April 22, 2017	LRA and FENOC Letters L-11-166, L-11-237, and L-11-252	A.1.30 B.2.30 Responses to NRC RAI 3.3.2.2.4.3-1 from NRC Letter dated May 2, 2011, and Supplemental Question – Makeup Pump Casing Inspections
14	Implement the PWR Reactor Vessel Internals Program as described in LRA Section B.2.32 .	April 22, 2017	LRA	A.1.32 B.2.32
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 Response to NRC RAI B.2.32-1 from NRC Letter dated July 11, 2011

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16	Enhance the Reactor Head Closure Studs Program as follows: - 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 for the reactor head closure stud assemblies will be included in the program. - 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.	April 22, 2017	LRA and FENOC Letter L-11-218	A.1.34 B.2.34 Response to NRC RAI B.2.34-1 from NRC Letter dated June 20, 2011
17	Enhance the Reactor Vessel Surveillance Program as follows: The Capsule Insertion and Withdrawal Schedule for Davis-Besse will be revised to schedule testing of the TE1-C capsule.	April 22, 2017	LRA	A.1.35 B.2.35
18	Implement the Selective Leaching Inspection as described in LRA Section B.2.36 .	April 22, 2017	LRA	A.1.36 B.2.36
19	Implement the Small Bore Class 1 Piping Inspection as described in LRA Section B.2.37 .	Completed within the six year period prior to April 22, 2017.	LRA and FENOC Letter L-11-153	A.1.37 B.2.37 Response to NRC RAI B.2.37-2 from NRC Letter dated April 20, 2011

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20	Enhance the Structures Monitoring Program to: • 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. Require the use of the FENOC Corrective Action Program for identified concrete or steel degradation. • 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	Prior to April 22, 2017	LRA FENOC Letters L-11-153, L-11-237, L-11-292, and L-11-317	A.1.39 B.2.39 Responses to NRC RAIs B.2.39-4, B.2.39-5, B.2.39-6 and B.2.39-7 from NRC Letter dated April 5, 2011, B.2.39-11 and 3.5.2.3.12-4 from NRC Letter dated July 21, 2011, Supplemental RAI B.2.39-11 from telecon held with the NRC on September 13, 2011, and Supplemental RAI OIN-380

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	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. • Revise to 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, coatings, and waterproofing membranes. 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. • 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			from Region III IP-71002 Inspection

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	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 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. • Identify that: ○ 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.			
21	Enhance the Water Control Structures Inspection to: • 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	Prior to April 22, 2017	LRA and FENOC Letter	A.1.40 B.2.40 Responses to NRC RAI

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	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. • 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. • 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		L-11-153 and L-11-292	B.2.39-6 from NRC Letter dated April 5, 2011, and Supplemental RAI OIN-379 from Region III IP-71002 Inspection

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	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.	April 22, 2017	N/A	N/A
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 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.	Prior to April 22, 2017	LRA and FENOC Letters L-11-107 and L-11-203	A.2.3.4.2 A.2.7.4 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,

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				2011
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.	Prior to April 22, 2017	LRA and FENOC Letter L-11-166	A.1 Response to NRC RAI 3.0 from NRC Letter dated May 2, 2011
25	Enhance the Steam Generator Tube Integrity Program to: • 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 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	Prior to April 22, 2017	LRA and FENOC Letter L-12-001	A.1.38 B.2.38 Response to NRC RAI 3.1.2.2.16-3 from NRC Letter dated December 27, 2011

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	acceptance criteria for the gross visual inspections and the eddy-current inspections as no indication of cracking or relevant conditions of degradation.			
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 RAI B.2.39-3 from NRC Letter dated April 5, 2011, RAI B.2.39-11 from NRC Letter dated July 21, 2011, and 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	Prior to April 22, 2017	FENOC Letter L-11-134	Response to NRC RAI B.2.1-1 from NRC Letter dated April 5, 2011

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	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.”			
28	Enhance the Fuel Oil Chemistry Program to: - 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) 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. - Require that biological activity be monitored and trended at least quarterly.	Prior to April 22, 2017	LRA and FENOC Letters L-11-134 and L-11-238	A.1.20 B.2.20 Responses to NRC RAIs B.2.20-1 and B.2.20-2 from NRC Letter dated April 5, 2011, and Supplemental RAI OIN-368 from NRC Region III IP-71002 Inspection
29	Enhance the Cranes and Hoists Inspection Program to: 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.	Prior to April 22, 2017	LRA and FENOC Letter L-11-153	A.1.10 B.2.10 Response to NRC RAI B.2.10-2 from NRC Letter dated

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				April 20, 2011
30	Enhance the Leak Chase Monitoring Program to: • 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.	Prior to April 22, 2017	LRA and FENOC Letters L-11-153 and L-11-238	A.1.25 B.2.25 Responses to NRC RAI B.2.25-5 from NRC Letter dated April 5, 2011 and RAIs B.2.25-7 and B.2.39-10 from NRC Letter dated July 21, 2011
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.	Prior to April 22, 2017	FENOC Letter L-11-153	Response to NRC RAI B.2.39-8 from NRC Letter dated April 5, 2011

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32	Enhance the Closed Cooling Water Chemistry program to: - 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.	Prior to April 22, 2017	LRA and FENOC Letters L-11-153 and L-11-354	A.1.8 B.2.8 Response to NRC RAI B.2.8-1 from NRC Letter dated April 20, 2011 and Supplemental RAI 2.3.3.18-4 from telecom held with the NRC on November 9, 2011
33	<u>Phase 1</u> Perform the following actions to reduce or mitigate the refueling canal leaks inside containment: - Select and implement a leak detection method to locate the leakage area. - Evaluate temporary and permanent repair methods to stop or significantly reduce the leakage, and implement a repair plan. <u>Phase 2</u> Perform the following actions to evaluate the impact of refueling	Phase 1: Action 1 prior to December 31, 2014 Action 2 prior to December 31, 2016 Phase 2:	FENOC Letter L-11-252	Response to NRC RAI B.2.39-9 from NRC Letter dated July 27, 2011

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	canal leaks on concrete and reinforcing steel structures. Discontinue core bores, testing and reinforcing steel inspections when indications of refueling canal leakage are no longer present: 1. Perform a core bore in the south wall of the east-west section of the core flood pipe tunnel. 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 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.	Action 1 prior to December 31, 2014 Action 2 prior to December 31, 2023 Action 3 – Ongoing		

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34	Enhance the Bolting Integrity Program to: 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.	Prior to April 22, 2017	LRA and FENOC Letter L-11-153	A.1.4 B.2.4 Response to NRC RAI B.2.4-3 from NRC Letter dated April 20, 2011
35	Perform the following actions for each of two examinations (Phase 1 and Phase 2) of the Containment Vessel in the sand pocket region: - Perform nondestructive examination (NDE) of the Containment Vessel from the outer surface at five areas of previously-identified groundwater in-leakage. - 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: - approximately 3 inches below the existing grout-to-vessel interface in the sand pocket region; - at the existing grout-to-vessel interface level in the sand pocket region; and, - 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	Phase 1 prior to December 31, 2014 and Phase 2 prior to December 31, 2025	FENOC Letter L-11-252	Response to NRC RAI B.2.22-5 from NRC Letter dated July 21, 2011

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	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.			
36	Perform the following actions related to the Containment Vessel sand pocket region each refueling outage: - 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	Ongoing	FENOC Letter L-11-252 and L-11-354	Response to NRC RAI B.2.22-5 from NRC Letter dated July 21, 2011 and Supplemental RAI B.2.22-5 from telecons held with the NRC on October 5 and November 14, 2011

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	corrosion (MIC), and degraded grout, moisture barrier or sealant identified during the inspections using the FENOC Corrective Action Program. 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.			
37	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).	Phase 1 prior to December 31, 2014 and Phase 2 prior to December 31, 2020	FENOC Letters L-11-153 and L-11-238	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

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	- 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.			
38	Evaluate the concrete cracking observed on the underside of the spent fuel pool for necessary repairs. 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.	Prior to April 22, 2017	FENOC Letters L-11-153 and L-11-238	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
39	Address the potential for borated water degradation of the steel containment vessel through the following actions: 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	Phase 1 prior to December 31, 2014 and Phase 2 prior to December 31,	FENOC Letters L-11-153 and L-11-237	Responses to NRC RAIs B.2.22-2 from NRC Letter dated April 5, 2011, and

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Item Number	Commitment	Implementation Schedule	Source	Related LRA Section No./ Comments
	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.	2020		B.2.22-6 from NRC Letter dated July 27, 2011
40	Implement the Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Program as described in LRA Section B.2.41.	Prior to April 22, 2017	LRA and FENOC Letter L-11-153	A.1.41 B.2.41 Responses to NRC RAIs 3.3.2.2.5-1 and 3.3.2.71-2 from NRC Letter dated April 20, 2011
41	Establish a preventive maintenance task to periodically replace the flexible connections exposed to fuel oil in the Fuel Oil System.	Prior to April 22, 2017	FENOC Letter L-11-166	Response to NRC RAI 3.3.2.3.12-2 from NRC Letter dated May 2, 2011
42	Enhance the Fatigue Monitoring Program to: 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	Prior to April 22, 2016	LRA and FENOC Letter	A.1.16 B.2.16 Response to NRC RAI

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	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.		L-11-166	B.2.16-2 from NRC Letter dated April 20, 2011
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.	Prior to April 22, 2017	FENOC Letter L-11-188	Response to NRC RAI B.1.4-1 from NRC Letter dated May 19, 2011
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.	Prior to April 22, 2017	FENOC Letter L-11-203	Response to NRC RAI B.2.7-1 from NRC Letter dated April 20, 2011, as modified per telecon with the NRC held on June 7, 2011
45	Implement the Nuclear Safety-Related Coatings Program as described in LRA Section B.2.42.	Prior to April 22, 2017	FENOC Letter L-11-203	Response to NRC RAI XI.S8-1 from NRC Letter dated April 5, 2011

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46	Not used.			
47	Enhance the Inservice Inspection (ISI) Program - IWE to: 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.	Prior to April 22, 2017	LRA and FENOC Letter L-11-238 and L-11-292	A.1.22 B.2.22 Responses to NRC RAI B.2.22-7 from NRC Letter dated July 21, 2011, and Supplemental RAI B.2.22-7 from NRC telecons held on September 13 and 16, 2011
48	Complete an investigation and needed repairs or modification of the degraded portion of the safety-related intake canal embankment.	Prior to April 22, 2017	FENOC Letter L-11-238	Response to NRC RAI B.2.40-2 from NRC Letter dated July 21, 2011

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49	Enhance the Nickel-Alloy Management Program to: • 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).	Prior to April 22, 2017	FENOC Letter L-11-238	A.1.28 B.2.28 Response to NRC RAI B.2.28-1 from NRC Letter dated July 27, 2011