A4 Subsequent License Renewal Commitments

Table A4.0-1 Subsequent License Renewal Commitments

#	Program	Commitment	AMP	Implementation
1	*ASME Section XI Inservice Inspection, Subsections IWB, IWC, and IWD* program	The *ASME Section XI Inservice Inspection, Subsections IWB, IWC, and IWD* program is an existing condition monitoring program that will be enhanced as follows: 1. Procedures will be revised to require inspections be performed for the following: a. Welds associated with sentinel locations assessed under ASME Code, Section XI, Appendix L include the safety injection 6-inch diameter RCS cold leg nozzles. One safety injection cold leg nozzle is to be inspected once per 10 years for either Unit 1 or Unit 2. b. The pressurizer spray nozzle stainless steel-to-safe-end weld is to be inspected once per 10 years for each unit. 2. Procedures will be revised to require periodic volumetric inspections of the steam generator feedwater nozzle thermal sleeves.	B2.1.1	Program enhancements for SLR will be implemented 6 months prior to the subsequent period of extended operation.
2	*Water Chemistry* program	The *Water Chemistry* program is an existing preventive program that is credited.	B2.1.2	Ongoing
3	*Reactor Head Closure Stud Bolting* program	The *Reactor Head Closure Stud Bolting* program is an existing condition monitoring program that is credited.	B2.1.3	Ongoing
4	*Boric Acid Corrosion* program	The *Boric Acid Corrosion* program is an existing condition monitoring program that is credited.	B2.1.4	Ongoing
5	*Cracking of Nickel-Alloy Components and Loss of Material Due to Boric Acid-Induced Corrosion in Reactor Coolant Pressure Boundary Components* program	The *Cracking of Nickel-Alloy Components and Loss of Material Due to Boric Acid-Induced Corrosion in Reactor Coolant Pressure Boundary Components* program is an existing condition monitoring program that is credited.	B2.1.5	Ongoing
6	*Thermal Aging Embrittlement of Cast Austenitic Stainless Steel (CASS)* program	The *Thermal Aging Embrittlement of Cast Austenitic Stainless Steel (CASS)* program is an existing condition monitoring program that is credited.	B2.1.6	Ongoing

Table A4.0-1 Subsequent License Renewal Commitments

#	Program	Commitment	AMP	Implementation
7	*PWR Vessel Internals* program	The *PWR Vessel Internals* program is an existing condition monitoring program that will be enhanced as follows: 1. Procedures will be revised to provide guidance for inspections of the following reactor vessel internal components in accordance with the referenced report for each item: a. Control rod guide tube (CRGT) lower flange weld (MRP-227, Revision 1-A, “Materials Reliability Program: Pressurized Water Reactor Internals Inspection and Evaluation Guidelines”) b. CRGT guide plates (cards) and the lower guide tube continuous section sheaths and C-tubes (WCAP-17451-P, Revision 2, "Reactor Internals Guide Tube Wear - Westinghouse Domestic Fleet Operational Projections") (Revised - Supplement 1) c. Core barrel upper flange weld (UFW) (MRP-227, Revision 1-A) d. Core barrel lower girth weld (LGW) (MRP-227, Revision 1-A) e. Core barrel middle axial weld (MAW) and lower axial weld (LAW) (MRP-227, Revision 1-A) f. Core barrel upper axial weld (UAW) (MRP-227, Revision 1-A) g. Core barrel upper girth weld (UGW) (MRP-227, Revision 1-A) h. Core barrel lower flange weld (LFW) (MRP-227, Revision 1-A) i. Baffle-edge bolts (MRP-227, Revision 1-A) j. Baffle plates (MRP-227, Revision 1-A) k. Baffle-former bolts (MRP-227, Revision 1-A) l. Barrel-former bolts (MRP-227, Revision 1-A) m. Bottom-mounted instrumentation column bodies (MRP-227, Revision 1-A) n. Lower support column bodies (MRP-227, Revision 1-A) o. Lower support column bolts (MRP-227, Revision 1-A) p. Clevis insert bolts (MRP 2018-022, “Transmittal of MRP-191 Screening, Ranking, and Categorization Results and Interim Guidance in Support of Subsequent License Renewal at U.S. PWR Plants”) q. Clevis insert dowels (MRP 2018-022) r. Stellite™ wear surface on radial support keys (MRP 2018-022) s. Stellite™ wear surface on clevis inserts (MRP 2018-022) t. Fuel alignment pins for lower core plate (MRP 2018-022) u. Fuel alignment pins for upper core plate (MRP 2018-022) 2. (Deleted - Supplement 1)	B2.1.7	Program, accounting for the impacts of a gap analysis, will be implemented 6 months prior to the subsequent period of extended operation, or alternatively, a plant-specific program may be implemented 6 months prior to the subsequent period of extended operation.

Table A4.0-1 Subsequent License Renewal Commitments

#	Program	Commitment	AMP	Implementation
7	*PWR Vessel Internals* program	3. Procedures will be revised to provide acceptance criteria for inspection results for the following reactor vessel internal components in accordance with MRP-227, Revision 1-A: a. Thermal shield flexures b. Lower support forging c. Upper core plate 4. Procedures will be revised to provide guidance for one-time inspections of the core barrel MAW and LAW in accordance with MRP 2019-009, “Transmittal of NEI 03-08 ‘Good Practice’ Interim Guidance Regarding MRP-227-A and MRP-227, Revision 1, PWR Core Barrel and Core Support Barrel Inspection Requirements”.	B2.1.7	Program, accounting for the impacts of a gap analysis, will be implemented 6 months prior to the subsequent period of extended operation, or alternatively, a plant-specific program may be implemented 6 months prior to the subsequent period of extended operation.
8	*Flow-Accelerated Corrosion* program	1. The *Flow-Accelerated Corrosion* program is an existing condition monitoring program that is credited. (Updated - RAI Set 2)	B2.1.8	Program enhancements for SLR will be implemented 6 months prior to the subsequent period of extended operation.

Table A4.0-1 Subsequent License Renewal Commitments

#	Program	Commitment	AMP	Implementation
9	*Bolting Integrity* program	The *Bolting Integrity* program is an existing condition monitoring program that will be enhanced as follows: 1. Procedure(s) will be enhanced to: a. include inspections of pressure-retaining bolting in inaccessible areas when they become accessible by means such as excavation, dewatering, or shielding/barrier removal, and b. include a requirement during opportunistic maintenance activities to document the condition of bolt heads and threads. 2. Procedure(s) will be developed and/or revised to provide instructions for performing inspections of pressure boundary bolting for plant locations that preclude detection of joint leakage including bolting in submerged environments, bolting for air or gas systems, and bolting for piping systems not normally pressurized as follows: a. Submerged closure bolting is visually inspected for loss of material during maintenance activities. In this case, bolt heads are inspected when made accessible, and bolt threads are inspected when joints are disassembled. In each 10-year period during the subsequent period of extended operation, for each unit, a representative sample of bolt heads and threads is inspected up to a maximum of 19 bolts for each material and environment combination. If opportunistic maintenance activities will not provide access to 20% of the population (for a material/environment combination) up to a maximum of 19 bolt heads and threads over a 10-year period, then periodic pump vibration measurements are taken and trended. b. For air or gas systems, inspections are performed consistent with that of submerged closure bolting. Closure bolting for air or gas systems is visually inspected for loss of material during maintenance activities. In this case, bolt heads are visually inspected when made accessible, and bolt threads are visually inspected when joints are disassembled. In each 10-year period during the subsequent period of extended operation, for each unit, a representative sample of bolt heads and threads is inspected up to a maximum of 19 bolts for each material and environment combination. If opportunistic maintenance activities will not provide access to 20% of the population (for a material/environment combination) up to a maximum of 19 bolt heads and threads over a 10-year period, then soap bubble testing will be performed. c. For piping systems not normally pressurized, the torque of the bolting will be checked to the extent that the closure bolting is not loose. In each 10-year period during the subsequent period of extended operation, for each unit, a representative sample of bolt heads and threads is inspected up to a maximum of 19 bolts for each material and environment combination.	B2.1.9	Program enhancements for SLR will be implemented 6 months prior to the subsequent period of extended operation.

Table A4.0-1 Subsequent License Renewal Commitments

#	Program	Commitment	AMP	Implementation
9	*Bolting Integrity* program	3. Procedure(s) will be developed and/or revised to evaluate sampling-based inspections against plant-specific acceptance criteria to confirm that the sampling bases (e.g., selection, size, frequency) will maintain the components' intended functions throughout the subsequent period of extended operation based on the projected rate and extent of degradation. If any projected inspection results will not meet acceptance criteria prior to the next scheduled inspection, sampling frequencies will be evaluated and adjusted as determined by the corrective action program. Bolting that is unsuitable for continued use will be replaced. If the cause of the aging effect for each applicable material and environment is not corrected by repair or replacement for all components constructed of the same material and exposed to the same environment, additional inspections will be conducted if one of the inspections does not meet acceptance criteria. The number of increased inspections is determined in accordance with the site's corrective action process; however, there are no fewer than five additional inspections for each inspection that did not meet acceptance criteria, or 20% of each applicable material and environment combination is inspected, whichever is less. If subsequent inspections do not meet acceptance criteria, an extent of condition and extent of cause analysis is conducted to determine the further extent of inspections. Additional samples are inspected for any recurring degradation to ensure corrective actions appropriately address the associated causes. The additional inspections include inspections of components with the same material and environment combination for each unit and are completed within the 10-year inspection interval in which the original inspection was conducted.	B2.1.9	Program enhancements for SLR will be implemented 6 months prior to the subsequent period of extended operation.
10	*Steam Generators* program	The *Steam Generators* program is an existing condition monitoring program that is credited.	B2.1.10	Ongoing
11	*Open-Cycle Cooling Water* program	The *Open-Cycle Cooling Water* program is an existing condition monitoring program that is credited.	B2.1.11	Ongoing

Table A4.0-1 Subsequent License Renewal Commitments

#	Program	Commitment	AMP	Implementation
12	*Closed Treated Water Systems* program	The *Closed Treated Water Systems* program is an existing condition monitoring program that will be enhanced as follows: 1. A new procedure will be developed to specify that in each 10-year period during the subsequent period of extended operation, the minimum number of inspections is completed for the various sample populations (each material, water treatment program, and aging effect combination). If opportunistic inspections will not fulfill the minimum number of inspections by the end of each 10-year period, the program owner will initiate work orders as necessary to request additional inspections. A representative sample of 20% of the population (defined as components having the same material, water treatment program, and aging effect combination) or a maximum of nineteen components per population at each unit will be inspected. The new procedure will specify that the inspections focus on the bounding or lead components most susceptible to aging due to time in service, and severity of operating conditions. 2. A new procedure will be developed to specify that, where practical, the rate of any degradation is evaluated and projected until the end of the subsequent period of extended operation or the next scheduled inspection, whichever is shorter. The sampling bases (e.g., selection, size, frequency) will be adjusted as necessary based on the projection. 3. A new procedure will be developed to specify that additional inspections will be performed if any inspections do not meet the acceptance criteria, unless the cause of the aging effect for each applicable material and environment is corrected by repair or replacement. There will be no fewer than five additional inspections for each inspection that did not meet acceptance criteria, or 20% of each applicable material, environment, and aging effect combination inspected, whichever is less. If any subsequent inspections do not meet acceptance criteria, an extent of condition and extent of cause analysis will be conducted to determine the further extent of inspections required. Additional samples will be inspected for any recurring degradation to ensure corrective actions appropriately address the associated causes. The additional inspections will include inspections of components with the same material, environment, and aging effect combination at both Unit 1 and Unit 2. The additional inspections will be completed within the interval (e.g., refueling outage interval, 10-year inspection interval) in which the original inspection was conducted.	B2.1.12	Program enhancements for SLR will be implemented 6 months prior to the subsequent period of extended operation.
13	*Inspection of Overhead Heavy Load and Light Load (Related to Refueling) Handling Systems* program	The *Inspection of Overhead Heavy Load and Light Load (Related to Refueling) Handling Systems* program is an existing condition monitoring program that is credited.	B2.1.13	Ongoing
14	*Compressed Air Monitoring* program	The *Compressed Air Monitoring* program is an existing condition monitoring program that is credited.	B2.1.13	Ongoing

Table A4.0-1 Subsequent License Renewal Commitments

#	Program	Commitment	AMP	Implementation
15	*Fire Protection* program	The *Fire Protection* program is an existing condition monitoring program that will be enhanced as follows: 1. Procedures for fire barrier penetration seals, fire barriers, fire damper assemblies, and fire doors will be revised to require, where practical, identified degradation to be projected until the next scheduled inspection. For sampling-based inspections, results are evaluated against acceptance criteria to confirm that the sampling bases (e.g., selection, size, frequency) will maintain the components' intended functions throughout the subsequent period of extended operation based on the projected rate and extent of degradation. 2. Procedures will be revised to require that if degradation is detected within the inspection sample of penetration seals, the scope of the inspection is expanded to include additional seals in accordance with the Corrective Action Program. Additional inspections would be 20% of each applicable inspection sample; however, additional inspections would not exceed five. If any projected inspection results will not meet acceptance criteria prior to the next scheduled inspection, inspection frequencies are adjusted as determined by the Corrective Action Program.	B2.1.15	Program enhancements for SLR will be implemented 6 months prior to the subsequent period of extended operation.
16	*Fire Water System* program	The *Fire Water System* program is an existing condition monitoring and performance monitoring program that will be enhanced as follows: 1. Procedures will be developed or revised to specify: a. Standpipe and system flow tests for hose stations at the hydraulically most limiting locations for each zone of the system on a five-year interval to demonstrate the capability to provide the design pressure at required flow b. Wet pipe main drain testing will be performed on 20% of the standpipes and risers every 18 months on a refueling cycle basis. Acceptance criteria will be based upon monitoring flowing pressures from test to test to determine if there is a 10% reduction in full flow pressure when compared to previously performed tests. The Corrective Action Program will determine the cause and necessary corrective action. c. If a flow test or a main drain test does not meet acceptance criteria due to current or projected degradation additional tests are conducted. The number of increased tests is determined in accordance with the corrective action process; however, there are no fewer than two additional tests for each test that did not meet acceptance criteria. The additional inspections are completed within the interval in which the original test was conducted. If subsequent tests do not meet acceptance criteria, an extent of condition and extent of cause analysis is conducted to determine the further extent of tests. The additional tests include at least one test at the other unit with the same material, environment, and aging effect combination. d. Main drains for the standpipes associated with hose stations within the scope of subsequent license renewal will also be added to main drain testing procedures.	B2.1.16	Program will be implemented and inspections or tests begin 5 years before the subsequent period of extended operation. Inspections or tests that are to be completed prior to the subsequent period of extended operation are completed 6 months prior to the subsequent period of extended operation or no later than the last refueling outage prior to the subsequent period of extended operation.

Table A4.0-1 Subsequent License Renewal Commitments

#	Program	Commitment	AMP	Implementation
16	*Fire Water System* program	2. Procedures will be revised to perform internal visual inspections of sprinkler and deluge system piping to identify internal corrosion, foreign material, and obstructions to flow. Follow-up volumetric examinations will be performed if internal visual inspections detect an unexpected level of degradation due to corrosion product deposition. If organic or foreign material, or internal flow blockage that could result in failure of system function is identified, then an obstruction investigation will be performed within the Corrective Action Program that includes removal of the material, an extent of condition determination, review for increased inspections, extent of follow-up examinations, and a flush in accordance with NFPA 25, 2011 Edition, Annex D.5, Flushing Procedures. The internal visual inspections will consist of the following: a. Wet pipe sprinkler systems - 50% of the wet pipe sprinkler systems in scope for subsequent license renewal will have visual internal inspections of piping by removing a hydraulically remote sprinkler, performed every five years, consistent with NFPA 25, 2011 Edition, Section 14.2. During the next five-year inspection period, the alternate systems previously not inspected shall be inspected. b. Pre-action sprinkler systems - pre-action sprinkler systems in scope for subsequent license renewal will have visual internal inspections of piping by removing a hydraulically remote nozzle, performed every five years, consistent with NFPA 25, 2011 Edition, Section 14.2. c. Deluge systems - deluge systems in scope for subsequent license renewal will have visual internal inspections of piping by removing a hydraulically remote nozzle, performed every five years, consistent with NFPA 25, 2011 Edition, Section 14.2. 3. Procedures will be revised to perform system flow testing at five-year intervals with flows representative of those expected during a fire. A flow resistance factor (C-factor) will be calculated to compare and trend the friction loss characteristics to the results from previous flow tests. 4. Procedures will be revised to address recurring internal corrosion with the use of Low Frequency Electromagnetic Technique (LFET) or a similar technique on 100 feet of piping during each refueling cycle to detect changes in the pipe wall thickness. The procedure will specify thinned areas found during the LFET screening be followed up with pipe wall thickness examinations to ensure aging effects are managed and wall thickness is within acceptable limits. In addition to the pipe wall thickness examination, the performance of opportunistic visual inspections of the fire protection system will be required whenever the fire water system is opened for maintenance. The piping age, time in service, and susceptibility to corrosion should be considered in determining sample location priorities. 5. (Deleted - Supplement 3)The Unit 2 lube oil purification piping will have the piping pitch adjusted to improve drainage. A drain valve will be installed on the Unit 2 hydrogen seal oil fire protection piping to drain the line after system testing or initiation. As part of the drainage reconfiguration, visual inspections and wall thickness measurements will be performed to identify unexpected degradation. Piping with unexpected degradation will be replaced. (Revised - Supplement 1) (Renumbered - Supplement 2)	B2.1.16	Program will be implemented and inspections or tests begin 5 years before the subsequent period of extended operation. Inspections or tests that are to be completed prior to the subsequent period of extended operation are completed 6 months prior to the subsequent period of extended operation or no later than the last refueling outage prior to the subsequent period of extended operation.

Table A4.0-1 Subsequent License Renewal Commitments

#	Program	Commitment	AMP	Implementation
16	*Fire Water System* program	6. (Relocated to new Commitment 5 - Supplement 2) 7. (Completed - Supplement 2) 8. Procedures will be revised to perform a visual inspection of the fire protection pump suction strainers for loss of material on a 12-year frequency. (Added - Supplement 3)	B2.1.16	Program will be implemented and inspections or tests begin 5 years before the subsequent period of extended operation. Inspections or tests that are to be completed prior to the subsequent period of extended operation are completed 6 months prior to the subsequent period of extended operation or no later than the last refueling outage prior to the subsequent period of extended operation.

Table A4.0-1 Subsequent License Renewal Commitments

#	Program	Commitment	AMP	Implementation
17	*Outdoor and Large Atmospheric Metallic Storage Tanks* program	The *Outdoor and Large Atmospheric Metallic Storage Tanks* program is an existing condition monitoring program that will be enhanced as follows: 1. Procedures will be revised to require periodic visual inspections of the RWSTs and CCTs be performed at each refueling outage to confirm that the mastic sealant at the RWSTs and CCTs insulation and concrete foundation interface is intact. The visual inspections of the sealant will be supplemented with physical manipulation to detect any degradation. If there are any identified flaws, the mastic sealant will be repaired or replaced, and follow-up examination of the tank's surfaces will be conducted if deemed appropriate. An inspection of the caulk at the tank and concrete foundation interface will be included in the sample when the RWSTs and CCTs external insulation is removed and the caulk will be sampled for external surface visual examinations ten years before the subsequent period of extended operation. Results will be forwarded to Engineering for evaluation and the need for additional inspections will be determined based on projected corrosion rates. 2. Procedures will be revised to require the caulking at the ECST vent and vacuum breaker penetration-concrete missile barrier interface be inspected on a 18-month frequency to confirm that the caulking is intact. The visual inspections will be supplemented with physical manipulation to detect any degradation. If there are any identified flaws, the caulking will be repaired or replaced. (Added - Supplement 4) 3. Procedures will be revised to require visual and surface examination of the exterior surfaces of the RWSTs, CATs, and CCTs be performed to identify any loss of material or cracking. A minimum of either 25 one-square foot sections or 20% of the surface area of insulation will be required to be removed to permit inspection of the exterior surface of each tank. The procedure will specify that sample inspection points be distributed in such a way that inspections occur near the bottoms, at points where structural supports, pipe, or instrument nozzles penetrate the insulation, and where water could collect such as on top of stiffening rings. If no unacceptable loss of material or cracking is observed, subsequent external surface examinations of insulated tanks will inspect for indications of damage to the jacketing, evidence of water intrusion through the insulation, or evidence of damage to the moisture barrier of tightly adhering insulation. (Renumbered - Supplement 4) 4. Unit 1 ECST: Procedures will be revised to require one-time thickness measurements of a sample of the Unit 1 ECST interior wall and tank bottom prior to the subsequent period of extended operation to assess potential degradation due to leakage identified from the missile shield into the pipe penetration area in the Auxiliary Feedwater Pump House. The samples will examine the ECSTs interior vertical steel shell region from the bottom of the tank along the pipe penetration area, extending six feet vertically up from the tank, as this is a region potentially most susceptible to external surface degradation. Tank bottom thickness measurements will also be performed. The inspection results will be projected to the end of the subsequent period of extended operation to confirm the Unit 1 ECST intended function will be maintained throughout the subsequent period of extended operation based on the projected rate of degradation. Any degradation not meeting acceptance criteria will require periodic 10-year thickness measurements and a sample expansion along the leakage path consistent with the observed degradation.	B2.1.17	Program will be implemented and inspections or tests begin 10 years before the subsequent period of extended operation. Inspections or tests that are to be completed prior to the subsequent period of extended operation are completed 6 months prior to the subsequent period of extended operation or no later than the last refueling outage prior to the subsequent period of extended operation.

Table A4.0-1 Subsequent License Renewal Commitments

#	Program	Commitment	AMP	Implementation
17	*Outdoor and Large Atmospheric Metallic Storage Tanks* program	Unit 2 ECST: The Unit 2 ECST external vertical wall degradation projections to the end of the subsequent period of extended operation that exceed less than 0.1 inch wall thickness will be repaired prior to entering the subsequent period of extended operation. Periodic inspections of a minimum of five locations with the lowest wall thickness readings will be performed on a ten-year inspection frequency. Inspection results projected to the end of the subsequent period of extended operation that do not meet acceptance criteria will require an extent of condition and extent of cause to determine the further extent of inspection and corrective actions. Tank bottom thickness measurements will also be performed. (Revised - Supplement 1) (Renumbered - Supplement 4) 5. Procedures will be revised to require volumetric examination thickness measurements of the bottom of the RWSTs and CCTs be performed each 10-year period during the subsequent period of extended operation starting ten years before the subsequent period of extended operation. Results will be forwarded to Engineering for evaluation and the need for additional inspections will be determined based on projected corrosion rates. (Renumbered - Supplement 4) 6. A new procedure will be developed to specify that additional inspections be performed consistent with NUREG-2191. (Renumbered - Supplement 4) If any inspections do not meet the acceptance criteria, additional inspections are conducted if one of the inspections does not meet acceptance criteria due to current or projected degradation (i.e., trending). a. For inspections where only one tank of a material, environment, and aging effect was inspected, all tanks in that grouping are inspected. b. For other sampling based inspections there will be no fewer than five additional inspections for each inspection that did not meet acceptance criteria, or 20% of each applicable material, environment, and aging effect combination inspected, whichever is less. If any subsequent inspections do not meet acceptance criteria, an extent of condition and extent of cause analysis will be conducted to determine the further extent of inspections required. Additional samples will be inspected for any recurring degradation to ensure corrective actions appropriately address the associated causes. The additional inspections will include inspections of components with the same material, environment, and aging effect combination at the other unit. The additional inspections will be completed within the interval (i.e., 10-year inspection interval) in which the original inspection was conducted or, if identified in the latter half of the current inspection interval, within the first half of the next inspection interval. These additional inspections conducted in the next inspection interval cannot also be credited towards the number of inspections in the latter interval. If any projected inspection results will not meet acceptance criteria prior to the next scheduled inspection, inspection frequencies are adjusted as determined by the Corrective Action Program. However, for one-time inspections that do not meet acceptance criteria, inspections are subsequently conducted at least at 10-year inspection intervals.	B2.1.17	Program will be implemented and inspections or tests begin 10 years before the subsequent period of extended operation. Inspections or tests that are to be completed prior to the subsequent period of extended operation are completed 6 months prior to the subsequent period of extended operation or no later than the last refueling outage prior to the subsequent period of extended operation.

Table A4.0-1 Subsequent License Renewal Commitments

#	Program	Commitment	AMP	Implementation
18	*Fuel Oil Chemistry* program	The *Fuel Oil Chemistry* program is an existing condition monitoring program that will be enhanced as follows: 1. (Completed - Supplement 1) 2. Procedure(s) will be revised or developed to drain, clean internally to the extent practical, visually inspect internal surfaces (if physically possible), and perform tank bottom thickness measurements of the following tanks: (Revised - Supplement 1) • Emergency diesel generator fuel oil day tanks (procedures are currently available to drain and clean on demand) • SBO diesel generator fuel oil day tank (new procedure needed) • Diesel-driven fire pump 2 fuel oil storage tank (new procedure needed) • Security diesel generator fuel oil day tank (new procedure needed) • Underground fuel oil storage tanks (procedures are currently available) The procedure(s) will require that if evidence of degradation is observed during visual inspection, or if visual inspection is not possible, volumetric inspections will be performed. The draining, cleaning and inspection of each tank will be performed at least once during the 10-year period prior to the subsequent period of extended operation and at least once every 10 years during the subsequent period of operation. Procedure(s) will be revised or developed as needed to require an Engineering evaluation be performed to evaluate and trend visual and volumetric (if degradation is detected during inspections) tank inspection results. Unacceptable inspection results will be documented in the Corrective Action Program. Thickness measurements will be evaluated against the design thickness and corrosion allowance. The rate of degradation is evaluated and projected until the end of the subsequent period of extended operation or the next scheduled inspection, whichever is shorter. The inspection frequency will be adjusted, as necessary, based on the projection. 3. Procedures will be revised or developed to perform a one-time draining, cleaning and internal visual inspection of the security diesel generator fuel oil supply tank between 30 and 40 years of service. Any degradation found during the internal visual inspection will be addressed by the Corrective Action Program. If degradation is observed, volumetric measurements will be performed. 4. (Completed - Supplement 1)	B2.1.18	Program will be implemented and inspections begin 10 years before the subsequent period of extended operation. Inspections that are to be completed prior to the subsequent period of extended operation are completed 6 months prior to the subsequent period of extended operation or no later than the last refueling outage prior to the subsequent period of extended operation.
19	*Reactor Vessel Material Surveillance* program	The *Reactor Vessel Material Surveillance* program is an existing condition monitoring program that is credited.	B2.1.19	Ongoing

Table A4.0-1 Subsequent License Renewal Commitments

#	Program	Commitment	AMP	Implementation
20	*One-Time Inspection* program	The *One-Time Inspection* program is a new condition monitoring program consisting of a one-time inspection of selected components to verify: (a) the system-wide effectiveness of an AMP that is designed to prevent or minimize aging to the extent that it will not cause the loss of intended function during the subsequent period of extended operation; (b) the insignificance of an aging effect; and (c) that long-term loss of material will not cause a loss of intended function for steel components exposed to environments that do not include corrosion inhibitors as a preventive action. The One-Time Inspection program will perform a magnetic particle test inspection of the continuous circumferential transition cone closure weld and the accessible portions of the upper shell-to-transition cone girth weld on each steam generator (essentially 100% examination coverage of each weld) prior to the subsequent period of extended operation. (Updated - Supplement 2) Industry and plant-specific operating experience will be evaluated in the development and implementation of this program.	B2.1.20	Program will be implemented and inspections begin 10 years before the subsequent period of extended operation. Inspections that are to be completed prior to the subsequent period of extended operation are completed 6 months prior to the subsequent period of extended operation or no later than the last refueling outage prior to the subsequent period of extended operation.
21	*Selective Leaching* program	The *Selective Leaching* program is a new condition monitoring program that will monitor components constructed of materials which are susceptible to selective leaching. The selective leaching program includes a one-time inspection for susceptible components exposed to closed cycle cooling water and treated water environment since plant-specific operating experience has not revealed selective leaching in these environments, as well as opportunistic and periodic inspections for susceptible components exposed to raw water, waste water, and soil (which may include groundwater) environments. Industry and plant-specific operating experience will be evaluated in the development and implementation of this program.	B2.1.21	Program will be implemented and inspections begin 10 years before the subsequent period of extended operation. Inspections that are to be completed prior to the subsequent period of extended operation are completed 6 months prior to the subsequent period of extended operation or no later than the last refueling outage prior to the subsequent period of extended operation.

Table A4.0-1 Subsequent License Renewal Commitments

#	Program	Commitment	AMP	Implementation
22	*ASME Code Class 1 Small-Bore Piping* program	The *ASME Code Class 1 Small-Bore Piping* program is a new condition monitoring program that augments the existing ASME Code, Section XI requirements and is applicable to ASME Code Class 1 small-bore piping and systems with a NPS diameter less than 4 inches and greater than or equal to 1 inch. This program provides for volumetric examination of a sample of full penetration (butt) welds and partial penetration (socket) welds in Class 1 piping to manage cracking due to stress corrosion cracking or thermal or vibratory fatigue loading. Volumetric examinations will employ techniques that have been demonstrated to be capable of detecting flaws and discontinuities in the examination volume of interest. The extent and schedule for volumetric examination is based on plant-specific operating experience and whether actions have been implemented that effectively mitigate the cause(s) of any past cracking. The program provides for a one-time inspection of a sample of the population of welds (butt welds or socket welds) for plants that have not experienced cracking or have experienced cracking but have implemented corrective actions, such as a design change, to effectively mitigate the cause(s) of the cracking. The program provides for periodic inspection of a sample of the population of welds (butt welds or socket welds) that have experienced cracking and have not implemented corrective actions to effectively mitigate the cause(s) of the cracking. Industry and plant-specific operating experience will be evaluated in the development and implementation of this program.	B2.1.22	Program will be implemented and inspections are completed within 6 years before the subsequent period of extended operation. Inspections that are to be completed prior to the subsequent period of extended operation are completed 6 months prior to the subsequent period of extended operation or no later than the last refueling outage prior of extended operation.
23	*External Surfaces Monitoring of Mechanical Components* program	The *External Surfaces Monitoring of Mechanical Components* program is an existing condition monitoring program that will be enhanced as follows: 1. Procedures will be revised to specify walkdowns will be performed at a frequency not to exceed one refueling cycle. Since some surfaces are not readily visible during both plant operations and refueling outages, surfaces will be inspected when they are made accessible and at intervals that ensure the components' intended functions are maintained. 2. Procedures will be revised to specify that visual inspections of elastomers and flexible polymers will cover 100% of accessible component surfaces. The minimum surface area for tactile inspections of elastomers and flexible polymers will be at least 10% of the accessible surface area.	B2.1.23	Program enhancements for SLR will be implemented 6 months prior to the subsequent period of extended operation.

Table A4.0-1 Subsequent License Renewal Commitments

#	Program	Commitment	AMP	Implementation
23	*External Surfaces Monitoring of Mechanical Components* program	3. A new procedure will be developed to specify the following to manage cracking of stainless steel, nickel-alloy, and copper alloy (>15% Zn) components and cracking and loss of material of insulated outdoor/indoor components exposed to condensation populations: a. In each 10-year period during the subsequent period of extended operation, the minimum number of inspections is completed. Inspections for cracking will be performed from each of the stainless steel, nickel-alloy, and copper alloy (>15% Zn) component populations every 10 years. Examinations are conducted on 20% of the surface area unless the component is measured in linear feet, such as piping. Alternatively, any combination of a minimum of 25 one-foot axial length sections and components is inspected. In addition, for each unit, both the inner and outer nickel-alloy reactor vessel flange leakage monitor tubes will be inspected every 10 years. For insulated outdoor components and indoor components exposed to condensation, following insulation removal, a minimum of 20% of the in-scope piping length, or 20% of the surface area for components whose configuration does not conform to a one-foot axial length determination is inspected for loss of material and cracking. Alternatively, any combination of a minimum of 25 one-foot axial length sections and components for each material type is inspected. The new procedure will specify that the inspections focus on the components most susceptible to aging because of time in service, severity of operating conditions, and lowest design margin. b. Additional inspections will be performed if any sampling-based inspections to detect cracking in stainless steel, nickel-alloy, and copper alloy (>15% Zn) components do not meet the acceptance criteria, unless the cause of the aging effect for each applicable material and environment is corrected by repair or replacement. There will be no fewer than five additional inspections for each inspection that did not meet acceptance criteria, or 20% of each applicable material, environment, and aging effect combination inspected, whichever is less. If any subsequent inspections do not meet acceptance criteria, an extent of condition and extent of cause analysis will be conducted to determine the further extent of inspections required. Additional samples will be inspected for any recurring degradation to ensure corrective actions appropriately address the associated causes. The additional inspections will include inspections of components with the same material, environment, and aging effect combination at both Unit 1 and Unit 2. The additional inspections will be completed within the interval (e.g., refueling outage interval, 10-year inspection interval) in which the original inspection was conducted. 4. Procedures will be revised to evaluate and project the rate of degradation until the end of the subsequent period of extended operation or the next scheduled inspection, whichever is shorter. The inspection sampling bases (e.g., selection, size, frequency) will be adjusted as necessary based on the projection. 5. Procedures will be revised to specify that, where practical, acceptance criteria are quantitative (e.g., minimum wall thickness). For quantitative analyses, the required minimum wall thickness to meet applicable design standards will be used. For qualitative evaluations, applicable parameters such as ductility, color, and other indicators will be addressed to ensure a decision is based on observed conditions.	B2.1.23	Program enhancements for SLR will be implemented 6 months prior to the subsequent period of extended operation.

Table A4.0-1 Subsequent License Renewal Commitments

#	Program	Commitment	AMP	Implementation
24	*Flux Thimble Tube Inspection* program	The *Flux Thimble Tube Inspection* program is an existing condition monitoring program that is credited.	B2.1.24	Ongoing
25	*Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components* program	The *Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components* program is an existing condition monitoring program that will be enhanced as follows: 1. Procedures will be revised to require inspection of elastomeric and flexible polymeric components for the following: • Surface crazing, scuffing, loss of sealing, blistering, and dimensional change (e.g., “ballooning” and “necking”) • Loss of wall thickness • Exposure of internal reinforcement (e.g., reinforcing fibers, mesh, or underlying metal) for reinforced elastomers 2. Procedures will be revised to specify that visual inspection of elastomeric and flexible polymeric components is supplemented by tactile inspection to detect hardening or loss of suppleness. The minimum surface area for tactile inspections will be at least 10% of the accessible surface area. 3. Procedures will be revised to specify that follow-up volumetric examinations are performed where irregularities that could be indicative of an unexpected level of degradation are detected for steel components exposed to raw water, raw water (potable), or waste water. 4. Procedure(s) will be revised or developed to specify the following: a. In each 10-year period during the subsequent period of extended operation, the minimum number of inspections is completed for the various sample populations (each material, environment, and aging effect combination). If opportunistic inspections will not fulfill the minimum number of inspections by the end of each 10-year period, the program owner will initiate work orders as necessary to request additional inspections. A representative sample of 20% of the population (defined as components having the same material, environment, and aging effect combination) or a maximum of 19 components per population at each unit will be inspected. The new procedure will specify that the inspections focus on the bounding or lead components most susceptible to aging due to time in service and severity of operating conditions. b. The rate of degradation will be evaluated and projected until the end of the subsequent period of extended operation or the next scheduled inspection, whichever is shorter. The inspection sampling bases (e.g., selection, size, frequency) will be adjusted as necessary based on the projection.	B2.1.25	Program enhancements for SLR will be implemented 6 months prior to the subsequent period of extended operation.

Table A4.0-1 Subsequent License Renewal Commitments

#	Program	Commitment	AMP	Implementation
25	*Inspection of Internal Surfaces in Miscellaneous Piping and Ducting Components* program	c. (Deleted duplicate text - RAI Set 3)Additional inspections will be performed if any sampling-based inspections do not meet the acceptance criteria, unless the cause of the aging effect for each applicable material and environment is corrected by repair or replacement. There will be no fewer than five additional inspections for each inspection that did not meet acceptance criteria, or 20% of each applicable material, environment, and aging effect combination are inspected, whichever is less. If any subsequent inspections do not meet acceptance criteria, an extent of condition and extent of cause analysis will be conducted to determine the further extent of inspections required. Additional samples will be inspected for any recurring degradation to ensure corrective actions appropriately address the associated causes. The additional inspections will include inspections of components with the same material, environment, and aging effect combination at both Unit 1 and Unit 2. The additional inspections will be completed within the interval (e.g., refueling outage interval, 10-year inspection interval) in which the original inspection was conducted or, if identified in the latter half of the current inspection interval, within the next refueling outage interval. These additional inspections conducted in the next inspection interval cannot also be credited towards the number of inspections in the latter interval. 5. The existing inspections of the Unit 1 and Unit 2 bearing cooling system, performed under the Corrective Action Program, will be enhanced to require performance of a minimum of 10 piping wall thickness measurements at each Unit with a frequency not to exceed two refueling cycle intervals. Locations with a wall thickness of less than 50% will be selected and augmented as necessary considering prior inspection results, extent of degradation, rate of degradation, and timing of the next inspection. (Renumbered - RAI Set 3) 6. Procedure(s) will be revised or developed to specify that, where practical, acceptance criteria are quantitative (e.g., minimum wall thickness). For quantitative analyses, the required minimum wall thickness to meet applicable design standards will be used. For qualitative evaluations, applicable parameters such as ductility, color, and other indicators will be addressed to ensure a decision is based on observed conditions.(Renumbered - RAI Set 3)	B2.1.25	Program enhancements for SLR will be implemented 6 months prior to the subsequent period of extended operation.
26	*Lubricating Oil Analysis* program	The *Lubricating Oil Analysis* program is an existing preventive program that is credited.	B2.1.26	Ongoing

Table A4.0-1 Subsequent License Renewal Commitments

#	Program	Commitment	AMP	Implementation
27	*Buried and Underground Piping and Tanks* program	The *Buried and Underground Piping and Tanks* program is an existing condition monitoring program that will be enhanced as follows: 1. Procedures will be revised to obtain pipe-to-soil potential measurements for piping in the scope of SLR during the next soil survey within 10 years prior to entering the subsequent period of operation. 2. The following service water CP subsystems will be refurbished and reconnected before the last five years of the inspection period prior to entering the subsequent period of extended operation: a. The service water 'D' CP subsystem b. The service water 'C' CP subsystem associated with the buried carbon steel piping of the fuel oil system for the emergency electrical power system 3. The following buried piping materials will be replaced before the last five years of the inspection period prior to entering the subsequent period of extended operation. (Added - Supplement 1) a. The buried copper piping between the fire protection jockey pump and the hydropneumatic tank will be replaced with carbon steel. b. The buried carbon steel fill line piping for the security diesel fuel oil tank will be replaced with corrosion resistant material that does not require inspection (e.g., titanium alloy, super austenitic, or nickel alloy materials). 4. Procedures will be revised to specify that cathodic protection surveys use the -850 mV polarized potential, instant off criterion specified in NACE SP0169-2007 for steel piping acceptance criteria unless a suitable alternative polarization criteria can be demonstrated. Alternatives will include the -100 mV polarization criteria, -750 mV criterion (soil resistivity is greater than 10,000 ohm-cm to less than 100,000 ohm-cm), -650 mV criterion (soil resistivity is greater than 100,000 ohm-cm), or verification of less than 1 mpy loss of material rate. a. The external loss of material rate is verified: • Every year when verifying the effectiveness of the cathodic protection system by measuring the loss of material rate. • Every 2 years when using the 100 mV minimum polarization. • Every 5 years when using the -750 or -650 mV criteria associated with higher resistivity soils. The soil resistivity is verified every 5 years.	B2.1.27	Program will be implemented and inspections begin 10 years before the subsequent period of extended operation. Inspections that are to be completed prior to the subsequent period of extended operation are completed 6 months prior to the subsequent period of extended operation or no later than the last refueling outage prior to the subsequent period of extended operation.

Table A4.0-1 Subsequent License Renewal Commitments

#	Program	Commitment	AMP	Implementation
27	*Buried and Underground Piping and Tanks* program	b. As an alternative to verifying the effectiveness of the cathodic protection system every five years, soil resistivity testing is conducted annually during a period of time when the soil resistivity would be expected to be at its lowest value (e.g., maximum rainfall periods). Upon completion of ten annual consecutive soil samples, soil resistivity testing can be extended to every five years if the results of the soil sample tests consistently have verified that the resistivity did not fall outside of the range being credited (e.g., for the -750 mV relative to a CSE, instant off criterion, measured soil resistivity values were greater than 10,000 ohm-cm). c. When using the electrical resistance corrosion rate probes: • The individual determining the installation of the probes and method of use will be qualified to NACE CP4, "Cathodic Protection Specialist" or similar • The impact of significant site features and local soil conditions will be factored into placement of the probes and use of the data 5. Procedures will be revised to require a minimum of six excavations be conducted at each unit to inspect for loss of material due to selective leaching in buried gray cast iron fire protection piping and piping components. The inspections will be conducted in the 10-year period prior to the subsequent period of extended operation and in each 10-year period during the subsequent period of extended operation. A ten-foot pipe length will be excavated for each buried gray cast iron fire protection piping sample and the external surfaces inspected for blistering, cracking, hardening or loss of strength, and loss of material. Additionally, NUREG-2191 Section XI.M33 Selective Leaching program destructive examinations will be conducted on a one-foot length of fire protection system piping or a different component type from each discrete inspection location (six/unit) to inspect for loss of material due to selective leaching. Five of the inspections will be conducted on a one-foot length of fire protection piping and the sixth inspection will be conducted on either a one-foot length of piping from the fire protection system or a different component type (e.g., hydrant) from the fire protection system. The selection of inspection locations for buried gray cast iron fire protection piping and piping components will consider the following criteria: (Added - Supplement 3)(Revised Supplement 4) • Older piping segments (i.e. not previously replaced) • Piping and piping components found to be continuously wetted due to leaking piping/valves or in soil with high corrosivity ratings as determined by EPRI Report 3002005294, Soil Sampling and Testing Methods to Evaluate the Corrosivity of the Environment for Buried Piping and Tanks at Nuclear Power Plants • Piping and piping components not cathodically protected • Piping and piping components with significant coating degradation or unexpected backfill • Consequence of failure (i.e. proximity to safety-related piping and piping components) • Locations with potentially high stress and/or cyclic loading conditions such as piping adjacent to locations that were replaced due to cracking/rupture, locations subject to settlement, or locations subject to heavy load traffic	B2.1.27	Program will be implemented and inspections begin 10 years before the subsequent period of extended operation. Inspections that are to be completed prior to the subsequent period of extended operation are completed 6 months prior to the subsequent period of extended operation or no later than the last refueling outage prior to the subsequent period of extended operation.

Table A4.0-1 Subsequent License Renewal Commitments

#	Program	Commitment	AMP	Implementation
27	*Buried and Underground Piping and Tanks* program	6. Procedures will be revised to require five excavated piping samples at each unit be inspected (internally and externally) for cracking due to cyclic loading. The inspections will be conducted in the 10-year period prior to the subsequent period of extended operation (SPEO) and in each 10-year period during the SPEO as follows: (Added – Supplement 4) a. A ten-foot pipe length of buried gray cast iron fire protection piping will be excavated for each inspection. b. Visual (VT) and magnetic particle (MT) examinations will be conducted on the 10-foot buried gray cast iron fire protection piping samples. The radiographic (RT) nondestructive examination (NDE) method will be applied to areas that have potential surface cracking identified using the MT method. c. Examination results will be evaluated by a Level II or III examiner qualified to ASME Code, Section XI and the following performed, as applicable: • If there is no cracking identified using the NDE techniques, then a one-foot axial piece of the fire protection piping sample will still be removed and destructively examined to inspect for the loss of material due to selective leaching as required by NUREG-2191 Section XI.M33, Selective Leaching program (see Enhancement 5). • If cracking is identified, then a bounding one-foot axial section of the fire protection piping sample will be selected based on the crack size and characterization determined by a qualified NDE Level II or III examiner and further destructive examination conducted to identify cracking due to cyclic loading. The destructive examination of the one-foot axial section will also be inspected for the loss of material due to selective leaching (see Enhancement 5). d. If results of the destructive examination inspections determine the cracking is due to cyclic loading, then Engineering will perform a crack growth evaluation and a flaw stability evaluation based on the predicted crack lengths at the end of the SPEO. e. If results of the evaluations indicate the depth or extent of cracking of the base metal is projected to cause loss of intended function prior to the end of the SPEO, Engineering will perform an evaluation to determine the extent of condition, extent of cause, and the need for further follow-on actions through the Corrective Action Program (e.g., additional inspections).	B2.1.27	Program will be implemented and inspections begin 10 years before the subsequent period of extended operation. Inspections that are to be completed prior to the subsequent period of extended operation are completed 6 months prior to the subsequent period of extended operation or no later than the last refueling outage prior to the subsequent period of extended operation.

Table A4.0-1 Subsequent License Renewal Commitments

#	Program	Commitment	AMP	Implementation
28	*Internal Coatings/Linings for In-Scope Piping, Piping Components, Heat Exchangers, and Tanks p*rogram	The *Internal Coatings/Linings for In-Scope Piping, Piping Components, Heat Exchangers, and Tanks p*rogram is an existing condition monitoring program that will be enhanced as follows: 1. Procedures will be revised to require baseline inspections (100% of accessible coatings/linings) of the following tanks, piping, and miscellaneous components within the scope of subsequent license renewal and inspection intervals will not exceed those specified in NUREG-2191 Table XI.M42-1, Inspection Intervals for Internal Coatings/Linings for Tanks, Piping, Piping Components, and Heat Exchangers: (Revised - Supplement 1) • Condensate polishing Powdex tanks • Pressurizer relief tanks • Chilled water mechanical chiller cooler (channel head) • Circulating water inlet and outlet waterbox distributors • Fire protection isolation valve • Drains - bldg. services piping 2. Procedures will be revised to include as an alternative to repair, rework, or removal, internal coatings/linings exhibiting indications of peeling and delamination. The component may be returned to service if: a. Physical testing is conducted to ensure that the remaining coating is tightly bonded to the base metal, b. the potential for further degradation of the coating is minimized, (i.e., any loose coating is removed, the edge of the remaining coating is feathered), c. adhesion testing using ASTM International Standards endorsed in RG 1.54 (e.g., pull-off testing, knife adhesion testing) is conducted at a minimum of three sample points adjacent to the defective area, d. an evaluation is conducted of the potential impact on the system, including degraded performance of downstream components due to flow blockage and loss of material or cracking of the coated component, and e. follow-up visual inspections of the degraded coating are conducted within two years from detection of the degraded condition, with a re-inspection within an additional two years, or until the degraded coating is repaired or replaced.	B2.1.28	Program will be implemented and inspections begin 10 years before the subsequent period of extended operation. Inspections that are to be completed prior to the subsequent period of extended operation are completed 6 months prior to the subsequent period of extended operation or no later than the last refueling outage prior to the subsequent period of extended operation.

Table A4.0-1 Subsequent License Renewal Commitments

#	Program	Commitment	AMP	Implementation
28	*Internal Coatings/Linings for In-Scope Piping, Piping Components, Heat Exchangers, and Tanks p*rogram	3. Procedures will be revised to require additional inspections be conducted if one of the inspections does not meet acceptance criteria due to current or projected degradation (i.e., trending) unless the cause of the aging effect for each applicable material and environment is corrected by repair or replacement of components constructed of the same material and exposed to the same environment. The number of increased inspections will be determined in accordance with the Corrective Action Program. However, there are no fewer than five additional inspections or each inspection that did not meet acceptance criteria, or 20% of each applicable material, environment, and aging effect combination inspected, whichever is less. When inspections are based on the percentage of piping length, an additional 5% of the total length will be inspected. The timing of the additional inspections will be based on the severity of the degradation identified and will be commensurate with the potential for loss of intended function. However, in all cases, the additional inspections will be completed within the interval in which the original inspection was conducted, or if identified in the latter half of the current inspection interval, within the next refueling outage interval. These additional inspections conducted in the next inspection interval cannot also be credited towards the number of inspections in the latter interval. If subsequent inspections do not meet acceptance criteria, an extent of condition and extent of cause analysis will be conducted to determine the further extent of inspections. Additional samples will be inspected for any recurring degradation to provide reasonable assurance that corrective actions appropriately address the associated causes. The additional inspections will include inspections with the same material, environment, and aging effect combination at Unit 1 and Unit 2. 4. Procedures will be revised to require inspection frequencies for internal coatings/linings of in-scope piping and piping components are performed on a frequency consistent with Table XI.M42-1, various frequencies from 4-12 years.	B2.1.28	Program will be implemented and inspections begin 10 years before the subsequent period of extended operation. Inspections that are to be completed prior to the subsequent period of extended operation are completed 6 months prior to the subsequent period of extended operation or no later than the last refueling outage prior to the subsequent period of extended operation.

Table A4.0-1 Subsequent License Renewal Commitments

#	Program	Commitment	AMP	Implementation
29	*ASME Section XI, Subsection IWE* program	The *ASME Section XI, Subsection IWE* program is an existing condition monitoring program that will be enhanced as follows: 1. Procedures will be revised to augment visual examinations with surface examinations (or other applicable technique,(e.g., EVT-1) to manage cracking in the Containment pressure retaining portions of the fuel transfer tube, fuel transfer tube enclosure, fuel transfer tube blind flange, dissimilar metal weld penetrations, and high-temperature piping penetrations. Surface examinations will be performed once during each 10-year interval. (Revised - Supplement 1) 2. Procedures will be revised to perform a one-time volumetric examination of metal liner surfaces that are inaccessible from one side at both units if triggered by plant-specific operating experience. The trigger for this supplemental examination is plant-specific occurrence or recurrence of measurable metal liner corrosion (base metal material loss exceeding 10% of nominal plate thickness) at either unit initiated on the inaccessible side or areas, identified since the date of issuance of the first renewed license. This supplemental volumetric examination consists of a sample of one-foot square locations that include both randomly-selected and focused areas most likely to experience degradation based on operating experience and/or other relevant considerations such as environment. The supplemental volumetric examinations for each unit will occur within two refueling outages after identifying the trigger for the examination. Any identified degradation is addressed in accordance with the applicable provisions of the *ASME Section XI, Subsection IWE* program. The sample size, locations, and any needed scope expansion (based on findings) for this one-time set of volumetric examinations should be determined on a plant-specific basis to demonstrate statistically with 95% confidence that 95% of the accessible portion of the containment liner is not experiencing corrosion degradation with greater than 10% loss of nominal thickness. There has been no triggering plant-specific operating experience at either unit since the date of issuance of the first renewed licenses. (Revised - Supplement 1) 3. Plant procedures will be revised to specify that successive inspections will be sequenced, evaluated, and re-examined in accordance with ASME Code, Section XI, Subsection IWE, Article IWE-2420. Examination results will be compared with recorded results of prior inservice examinations and evaluated for acceptance in accordance with ASME Code, Section XI, Subsection IWE, Article IWE-3120.	B2.1.29	Program enhancements are implemented 6 months prior to the subsequent period of extended operation and if triggered by plant-specific operating experience, a one-time supplemental volumetric examination by sampling randomly selected as well as focused locations susceptible to loss of thickness due to corrosion of containment shell or liner that is inaccessible from one side is completed 6 months prior to the subsequent period of extended operation or no later than the last refueling outage prior to the subsequent period of extended operation.
30	*ASME Section XI, Subsection IWL* program	The *ASME Section XI, Subsection IWL* program is an existing condition monitoring program that is credited.	B2.1.30	Ongoing

Table A4.0-1 Subsequent License Renewal Commitments

#	Program	Commitment	AMP	Implementation
31	*ASME Section XI, Subsection IWF* program	The *ASME Section XI, Subsection IWF* program is an existing condition monitoring program that will be enhanced as follows: 1. Procedures will be revised to evaluate the acceptability of inaccessible areas (e.g., portions of supports encased in concrete, buried underground, or encapsulated by guard pipe) when conditions exist in accessible areas that could indicate the presence of, or result in, degradation to such inaccessible areas. 2. Procedures will be revised to specify that, for high-strength bolting greater than one inch nominal diameter within the scope of the *ASME Section XI, Subsection IWF* program, volumetric examination comparable to that of ASME Code, Section XI, Table IWB-2500-1, Examination Category B-G-1 will be performed to detect cracking in addition to the VT-3 examination. In each 10-year period during the subsequent period of extended operation, a representative sample of 20% of the population or a maximum of 19 high-strength bolts per unit will be inspected for IWF supports located in an “air” environment. 3. Procedures will be revised to specify a one-time inspection within five years prior to entering the subsequent period of extended operation of an additional 5% of the sample populations for Class 1, 2, and 3 piping supports. The additional supports will be selected from the remaining population of IWF piping supports and will include components that are most susceptible to age-related degradation. 4. (Completed - Supplement 1)	B2.1.31	Program will be implemented and a one-time inspection of an additional 5% of the sample size specified in Table IWF-2500-1 for Class 1, 2, and 3 piping supports is conducted within 5 years prior to the subsequent period of extended operation, and are to be completed prior to the subsequent period of extended operation, are completed 6 months prior to the subsequent period of extended operation or no later than the last refueling outage prior to the subsequent period of extended operation.
32	*10 CFR 50, Appendix J* program	The *10 CFR 50, Appendix J* program is an existing condition monitoring program that is credited.	B2.1.32	Ongoing
33	*Masonry Walls* program	The *Masonry Walls* program is an existing condition monitoring program that is credited.	B2.1.33	Ongoing
34	*Structures Monitoring* program	The *Structures Monitoring* program Is an existing condition monitoring program that will be enhanced as follows: 1. Procedures will be revised to include inspection of the following structures that are within the scope of subsequent license renewal: Administration Building (aka Office Building), Decontamination Building, Domestic Water Treatment Building, Heater Boiler Room, Maintenance Building, New Fuel Receiving Building, Waste Disposal (Clarifier) Building, Waste Solids Building, 17-ton Carbon Dioxide tank foundation, and Backup 34.5 kV Circuit Power Poles (Switchyard to the Reserve Station Service Transformers). Baseline inspections for the added structures will be performed under the enhanced program in order to establish quantitative inspection data prior to conduct of periodic inspections in the subsequent period of extended operation. The baseline inspections will include baseline inspections of the masonry walls in the Administration Building, Decontamination Building, Domestic Water Treatment Building, and the Maintenance Building.	B2.1.34	Program enhancements for SLR will be implemented 6 months prior to the subsequent period of extended operation.

Table A4.0-1 Subsequent License Renewal Commitments

#	Program	Commitment	AMP	Implementation
34	*Structures Monitoring* program	2. Procedures will be revised to specify that structural components inspected include structural bolting, anchor bolts and embedments, component support members, pipe whip restraints and jet impingement shields, transmission towers, panels and other enclosures, racks, sliding surfaces, sump and pool liners, electrical cable trays and conduits, tube tracks, trash racks associated with water-control structures, electrical duct banks, manholes, doors, penetration seals, seismic joint filler and other elastomeric materials. 3. Procedures will be revised to specify that aluminum and stainless steel structural components such as louvers, cable trays, conduits, and structural supports will be monitored for loss of material and cracking due to SCC that could lead to the reduction or loss of their intended function. (Revised - RAI Set 1) 4. Procedures will be revised to specify that elastomeric vibration isolators, structural sealants, and seismic joint fillers will be monitored for cracking, loss of material, and hardening that could lead to the reduction or loss of their intended function. Visual inspection of elastomeric elements is supplemented by tactile inspection to detect hardening if the intended function is suspect. 5. Procedures will be revised to specify that the carbon fiber reinforced polymer (CFRP) wrap of the concrete poles for the reserve station service transformer (RSST) tube bus will be monitored for hardening or loss of strength, loss of material, cracking or blistering that could lead to the reduction or loss of intended function. (Added - RAI Set 1) 6. Procedures will be revised to specify that accessible sliding surfaces will be monitored for indications of excessive loss of material due to corrosion or wear and debris or dirt that could restrict or prevent sliding of the surfaces. (Renumbered - RAI Set 1) 7. Procedures will be enhanced to specify that evaluations of neutron shield tank findings consider its structural support function for the reactor pressure vessel. (Renumbered - RAI Set 1)	B2.1.34	Program enhancements for SLR will be implemented 6 months prior to the subsequent period of extended operation.
35	*Inspection of Water-Control Structures Associated with Nuclear Power Plants* program	The *Inspection of Water-Control Structures Associated with Nuclear Power Plants* program is an existing condition monitoring program that will be enhanced as follows: 1. Procedures will be revised to include the Circulating Water Intake Tunnel Header and the Discharge Tunnel Seal Pit within the scope of the program. 2. Procedures will be revised to specify underwater inspections or dewatering to permit visual inspections for submerged structures, on a frequency not to exceed five years.	B2.1.35	Program enhancements for SLR will be implemented 6 months prior to the subsequent period of extended operation.
36	*Protective Coating Monitoring and Maintenance* program	The *Protective Coating Monitoring and Maintenance* program is an existing mitigative and condition monitoring program that is credited.	B2.1.36	Ongoing

Table A4.0-1 Subsequent License Renewal Commitments

#	Program	Commitment	AMP	Implementation
37	*Electrical Insulation for Electrical Cables and Connections Not Subject to 10 CFR 50.49 Environmental Qualification Requirements* program	The *Electrical Insulation for Electrical Cables and Connections Not Subject to 10 CFR 50.49 Environmental Qualification Requirements* program is an existing condition monitoring program that will be enhanced as follows: 1. Procedures will be revised to add the requirement to identify adverse localized environments through plant operational experience reviews, communication with maintenance, operations, and radiation protection personnel, and the use of environmental surveys for determining each of the most limiting cable and connection electrical insulation plant environments (e.g., caused by temperature, radiation, moisture, or contamination.) 2. Procedures will be revised to add a list of structures/areas to perform/conduct the visual inspections of cables and connections. 3. Procedures will be revised to add the requirement to perform a review of previously identified and mitigated adverse localized environments cumulative aging effects applicable to in-scope cable and connection electrical insulation. 4. Procedures will be revised to add a description of testing methodology: Should testing be deemed necessary based on unacceptable visual indications of surface anomalies, a sample size of 20% of each cable and connection insulation material type found within the adverse localized environment with a maximum sample size of 25 will be tested. The following factors will be considered in the development of the cable and connection insulation test sample: environment including identified adverse localized environments (high temperature, high humidity, vibration, etc.), voltage level, circuit loading, connection type, location (high temperature, high humidity, vibration, etc.), and insulation material. Testing may include thermography and other proven condition monitoring test methods applicable to the cable and connection insulation. Testing as part of an existing maintenance, calibration or surveillance program may be credited. The technical basis for the sample selected is provided. 5. Procedures will be revised to add the requirement that if anomalies are found during the visual inspection process, they will be addressed through the Corrective Action Program. 6. Procedures will be revised to add the requirement to verify that the test results for electrical cable and connection insulation material are to be within the acceptance criteria, as identified in the procedures. 7. Procedures will be revised to add the requirement to include the performance of an Engineering evaluation of unacceptable test results and visual indications of cable and connection electrical insulation abnormalities. The evaluation will consider the age and operating environment of the component, as well as the severity of the abnormality and whether such an abnormality has previously been correlated to degradation of cable or connection insulation. Corrective actions include, but are not limited to, testing, shielding, or otherwise mitigating the environment or relocation or replacement of the affected cables or connections. When an unacceptable condition or situation is identified, a determination is made as to whether the same condition or situation is applicable to additional in-scope accessible and inaccessible cables or connections (extent of condition).	B2.1.37	Program enhancements for SLR will be implemented 6 months prior to the subsequent period of extended operation.

Table A4.0-1 Subsequent License Renewal Commitments

#	Program	Commitment	AMP	Implementation
38	*Electrical Insulation for Electrical Cables and Connections Not Subject to 10 CFR 50.49 Environmental Qualification Requirements Used in Instrumentation Circuits* program	The *Electrical Insulation for Electrical Cables and Connections Not Subject to 10 CFR 50.49 Environmental Qualification Requirements Used in Instrumentation Circuits* program is an existing condition monitoring program that will be enhanced as follows: 1. A new procedure will be developed to add testing of the post-accident neutron monitoring system cables and connections external to Containment to the Program. The procedure will evaluate reduced electrical insulation resistance by measuring cable resistance and capacitance. 2. The Nuclear Instrumentation test procedures will be enhanced to specify the acceptance criteria.. 3. Procedures will be enhanced to include corrective actions and a requirement for performance of an Engineering evaluation when cable system test results do not meet the acceptance criteria. Results of the Engineering evaluation will determine if the test frequency needs to be increased.	B2.1.38	Program enhancements for SLR will be implemented 6 months prior to the subsequent period of extended operation.
39	*Electrical Insulation for Inaccessible Medium-Voltage Power Cables Not Subject to 10 CFR 50.49 Environmental Qualification Requirements* program	The *Electrical Insulation for Inaccessible Medium-Voltage Power Cables Not Subject to 10 CFR 50.49 Environmental Qualification Requirements* program is an existing condition monitoring program that will be enhanced as follows: 1. Procedures will be revised to inspect and dewater, if required, the in-scope manholes after event driven occurrences, such as heavy rain, rapid thawing of ice and snow, or flooding. 2. (Completed - Supplement 1) 3. (Completed - Supplement 1) 4. (Completed - Supplement 1) 5. (Completed - Supplement 1) 6. (Completed - Supplement 1) 7. (Completed - Supplement 1)	B2.1.39	Program enhancements for SLR will be implemented 6 months prior to the subsequent period of extended operation.
40	*Electrical Insulation for Inaccessible Instrument and Control Cables Not Subject to 10 CFR 50.49 Environmental Qualification Requirements* program	The *Electrical Insulation for Inaccessible Instrument and Control Cables Not Subject to 10 CFR 50.49 Environmental Qualification Requirements* program is a new condition monitoring program that will manage the effects of reduced electrical insulation resistance or degraded dielectric strength of non-EQ, in scope, inaccessible (e.g., installed in buried conduits, cable trenches, cable troughs, duct banks, underground vaults, or direct buried installations), instrument and control cables, exposed to significant moisture. Industry and plant-specific operating experience will be evaluated in the development and implementation of this program.	B2.1.40	Program will be implemented 6 months prior to the subsequent period of extended operation.

Table A4.0-1 Subsequent License Renewal Commitments

#	Program	Commitment	AMP	Implementation
41	*Electrical Insulation for Inaccessible Low-Voltage Power Cables Not Subject to 10 CFR 50.49 Environmental Qualification Requirements* program	The *Electrical Insulation for Inaccessible Low-Voltage Power Cables Not Subject to 10 CFR 50.49 Environmental Qualification Requirements* program is a new condition monitoring program that will manage the effects of reduced electrical insulation resistance or degraded dielectric strength of non-EQ, in scope, inaccessible (e.g., installed in buried conduits, cable trenches, cable troughs, duct banks, underground vaults, or direct buried installations), low-voltage power cables (operating voltage less than 2 kV), exposed to significant moisture. Industry and plant-specific operating experience will be evaluated in the development and implementation of this program.	B2.1.41	Program will be implemented 6 months prior to the subsequent period of extended operation.
42	*Metal-Enclosed Bus* program	The *Metal-Enclosed Bus* program is an existing condition monitoring program that will be enhanced as follows: 1. A new procedure will be created to add the MEB connecting 'A' Reserve Station Service Transformer to Bus 1G and Bus 2G to the scope of the program and perform inspections and testing on a ten year frequency with the first inspection scheduled prior to the subsequent period of extended operation. 2. Procedures will be revised to add a step for inaccessible sections of bus duct that requires engineering to provide guidance for performance of electrical testing of connections using an ohmmeter and for performance of visual inspection of the bus duct using a borescope. 3. Inspection procedures will be revised to add a note stating that 20% of the accessible bolted connection population, with a maximum of 25, is a representative sample for increased resistance of connection inspections. 4. Procedures will be revised to require the transmittal of bus connection resistance values to engineering for trending to provide information on the rate of connection degradation.	B2.1.42	Program enhancements for SLR will be implemented 6 months prior to the subsequent period of extended operation.
43	*Fuse Holders* program	The *Fuse Holders* program is an existing condition monitoring program that is credited.	B2.1.43	Ongoing
44	*Electrical Cable Connections Not Subject to 10 CFR 50.49 Environmental Qualification Requirements* program	The *Electrical Cable Connections Not Subject to 10 CFR 50.49 Environmental Qualification Requirements* program is a new condition monitoring program that consists of a representative sample of electrical connections tested prior to the subsequent period of extended operation. The results will be evaluated to determine if there is a need for subsequent periodic testing on a 10-year frequency. Industry and plant-specific operating experience will be evaluated in the development and implementation of this program.	B2.1.44	Program will be implemented 6 months prior to the subsequent period of extended operation.

Table A4.0-1 Subsequent License Renewal Commitments

#	Program	Commitment	AMP	Implementation
45	*High-Voltage Insulators* program	The *High-Voltage Insulators* program is a new condition monitoring program that visually inspects high voltage insulator surfaces and metallic parts at least once every two years initially with the frequency adjusted based on plant specific operating experience. For high-voltage insulators that are coated, the visual inspection will be performed at least once every five years. Industry and plant-specific operating experience will be evaluated in the development and implementation of this program.	B2.1.45	Program will be implemented 6 months prior to the subsequent period of extended operation. Inspections that are to be completed prior to the subsequent period of extended operation are completed 6 months prior to the subsequent period of extended operation or no later than the last refueling outage prior to the subsequent period of extended operation.
46	*Fatigue Monitoring* program	The *Fatigue Monitoring* program is an existing preventive program that will be enhanced as follows: 1. Procedures will be revised to require monitoring and tracking of transient cycles associated with the ASME Code, Section XI, Appendix L fatigue sensitive locations to be performed each inspection interval. Consistent with the existing cycle counting program, a surveillance limit will be established to initiate corrective actions prior to exceeding transient cycle assumptions in the ASME Code, Section XI, Appendix L analyses. 2. Procedures will be revised to expand existing corrective action guidance associated with exceeding a cycle counting surveillance limit to recommend consideration of component repair, component replacement, performance of a more rigorous analysis, performance of an ASME Code, Section XI, Appendix L flaw tolerance analysis, or scope expansion to consider other locations with the highest expected CUF_{en} values. 3. Procedures will be revised to require that when a cycle counting action limit is reached, action will be taken to ensure that the analytical bases of the High-Energy Line Break (HELB) locations are maintained.	B3.1	Program enhancements for SLR will be implemented 6 months prior to the subsequent period of extended operation.
47	*Neutron Fluence Monitoring* program	The *Neutron Fluence Monitoring* program is an existing condition monitoring program that is credited.	B3.2	Ongoing
48	*Environmental Qualification of Electric Equipment* program	The *Environmental Qualification of Electric Equipment* program is an existing condition monitoring program that is credited.	B3.3	Ongoing

Table A4.0-1 Subsequent License Renewal Commitments

#	Program	Commitment	AMP	Implementation
49	N/A	Procedures will be developed to replace the diesel-driven fire pump engine heat exchanger tube bundle on a 20-year frequency (Added – RAI Set 1) (Revised - Supplement 3)	N/A	Procedures to replace the diesel-driven fire pump heat exchanger tube bundle will be in place by 12/31/2021. Initial replacement of the tube bundle for engine #10277066, or replacement of that engine with the spare engine will be completed by 12/31/2025.(Added RAI Set 1) (Revised - Supplement 3)