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Fred Dacimo  
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Operations License Renewal

NL-11-096

August 9, 2011

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

SUBJECT: Clarification for Request for Additional Information (RAI)  
Aging Management Programs  
Indian Point Nuclear Generating Unit Nos. 2 & 3  
Docket Nos. 50-247 and 50-286  
License Nos. DPR-26 and DPR-64

REFERENCE:

1. NRC Letter, "Request for Additional Information for the Review of the Indian Point Nuclear Generating Unit Numbers 2 and 3, License Renewal Application," dated June 15, 2011
2. Entergy letter (NL-11-032), "Response to Request for Additional Information (RAI) Aging Management Programs," dated March 28, 2011
3. Entergy letter (NL-11-074), "Response to Request for Additional Information (RAI) Aging Management Programs," dated July 14, 2011
4. Entergy letter (NL-11-090), "Clarification for Request for Additional Information (RAI) Aging Management Programs," dated July 27, 2011

Dear Sir or Madam:

Entergy Nuclear Operations, Inc is providing, in Attachment 1, clarifications of the responses in References 2, 3 and 4. Attachment 2 provides the latest list of regulatory commitments including revisions to commitments discussed in this letter.

If you have any questions, or require additional information, please contact Mr. Robert Walpole at 914-734-6710.

A128  
NRC

I declare under penalty of perjury that the foregoing is true and correct. Executed on

August 9, 2011

Sincerely,

A handwritten signature in black ink, appearing to read "Fred W. Wrona", followed by a period.

FRD/rw

Attachment: 1. Clarification for Request for Additional Information (RAI), Aging Management Programs

Attachment: 2. IPEC List of Regulatory Commitments (Rev. 16)

cc: Mr. William Dean, Regional Administrator, NRC Region I  
Mr. Sherwin E. Turk, NRC Office of General Counsel, Special Counsel  
Mr. Dave Wrona, NRC Branch Chief, Engineering Review Branch I  
Mr. John Boska, NRR Senior Project Manager  
Mr. Paul Eddy, New York State Department of Public Service  
NRC Resident Inspector's Office  
Mr. Francis J. Murray, Jr., President and CEO NYSERDA

**ATTACHMENT 1 TO NL-11-096**

**LICENSE RENEWAL APPLICATION**  
**CLARIFICATION FOR REQUEST FOR ADDITIONAL INFORMATION (RAI)**  
**AGING MANAGEMENT PROGRAMS**

ENTERGY NUCLEAR OPERATIONS, INC.  
INDIAN POINT NUCLEAR GENERATING UNIT NOS. 2 & 3  
DOCKET NOS. 50-247 AND 50-286

**INDIAN POINT NUCLEAR GENERATING UNIT NOS. 2 AND 3  
LICENSE RENEWAL APPLICATION  
CLARIFICATION FOR REQUEST FOR ADDITIONAL INFORMATION (RAI)  
AGING MANAGEMENT PROGRAMS**

Changes are shown as strikethroughs for ~~deletions~~ and underlines for additions.

**Clarification for RAI 3.0.3.1.6-1 Part 1**

This clarification amends the response in letters NL-11-032, dated March 28, 2011; NL-11-074, dated July 14, 2011; and NL-11-090, dated July 27, 2011. These letters revised LRA Section A.2.1.22, A.3.1.22 and B.1.23. This letter revises LRA Sections A.2.1.22, A.3.1.22, and B.1.23.

Clarification is provided on the performance of event-driven inspections for water in cable manholes. Letter NL-11-032 correctly identified event-driven inspections as part of the Non-EQ Inaccessible Medium-Voltage Cable Program. Minor clarifications are provided to the program description in LRA Section B.1.23 provided in letter NL-11-032. In addition, LRA sections A.2.1.22 and A.3.1.22 are revised to clearly state that even-driven inspections are part of the program.

**A.2.1.22 Non-EQ Inaccessible Medium-Voltage Cable Program**

The Non-EQ Inaccessible Medium-Voltage Cable Program is a new program that entails periodic and event-driven inspections for water collection in cable manholes, and periodic testing of cables. In scope medium-voltage cables (cables with operating voltage from 2kV to 35kV) and low-voltage power cables (400 V to 2 kV) exposed to significant moisture will be tested at least once every six years to provide an indication of the condition of the conductor insulation. Test frequencies are adjusted based on test results and operating experience.

~~The frequency of inspections for water accumulation in manholes is established based on plant specific operating experience with cable wetting or submergence in manholes (i.e., the inspection is performed periodically based on water accumulation over time and event driven occurrences, such as heavy rain or flooding).~~

~~The frequency will be~~ program includes periodic inspections for water accumulation in manholes at least once every year (annually). In addition to the periodic manhole inspections, manhole inspection for water after events, such as heavy rain or flooding will be performed. Inspection frequency will be increased as necessary based on evaluation of inspection results.

The Non-EQ Inaccessible Medium-Voltage Cable Program will be implemented prior to the period of extended operation. This new program will be implemented consistent with the corresponding program described in NUREG-1801, Section XI.E3, Inaccessible Medium-Voltage Cables Not Subject To 10 CFR 50.49 Environmental Qualification Requirements.

**A.3.1.22 Non-EQ Inaccessible Medium-Voltage Cable Program**

The Non-EQ Inaccessible Medium-Voltage Cable Program is a new program that entails periodic and event-driven inspections for water collection in cable manholes, and periodic testing of cables. In scope medium-

voltage cables (cables with operating voltage from 2kV to 35kV) and low-voltage power cables (400 V to 2 kV) exposed to significant moisture will be tested at least once every six years to provide an indication of the condition of the conductor insulation. Test frequencies are adjusted based on test results and operating experience.

~~The frequency of inspections for water accumulation in manholes is established based on plant specific operating experience with cable wetting or submergence in manholes (i.e., the inspection is performed periodically based on water accumulation over time and event driven occurrences, such as heavy rain or flooding).~~

The ~~frequency will be~~ program includes periodic inspections for water accumulation in manholes at least once every year (annually). In addition to the periodic manhole inspections, manhole inspection for water after events, such as heavy rain or flooding will be performed. Inspection frequency will be increased as necessary based on evaluation of inspection results.

The Non-EQ Inaccessible Medium-Voltage Cable Program will be implemented prior to the period of extended operation. This new program will be implemented consistent with the corresponding program described in NUREG-1 8001, Section XI.E3, Inaccessible Medium-Voltage Cables Not Subject To 10 CFR 50.49 Environmental Qualification Requirements.

### **B.1.23 NON-EQ INACCESSIBLE MEDIUM-VOLTAGE CABLE**

#### Program Description

The Non-EQ Inaccessible Medium-Voltage Cable Program is a new program that entails periodic inspections for water collection in cable manholes and periodic testing of cables. In scope medium-voltage cables (cables with operating voltage from 2kV to 35kV) and low-voltage power cables (400 V to 2 kV) exposed to significant moisture will be tested at least once every six years to provide an indication of the condition of the conductor insulation. Test frequencies will be adjusted based on test results and operating experience. The program includes inspections for water accumulation in manholes at least once every year (annually). In addition to the periodic manhole inspections, manhole inspection for water for after events-driven occurrences, such as heavy rain or flooding will be performed. Inspection frequency will be increased as necessary based on evaluation of inspection results.

This program will be implemented prior to the period of extended operation.

#### Operating Experience

The Non-EQ Inaccessible Medium-Voltage Cable Program is a new program. Industry and plant-specific operating experience will be considered when implementing this program. Industry operating experience that forms the basis for the program is described in the operating experience element of the NUREG-1801 program description. IPEC plant-specific operating experience is not inconsistent with the operating experience in the NUREG-1801 program description.

The inspection frequency for manholes is based on plant-specific operating experience with cable wetting or submergence in manholes (i.e., the inspection is performed periodically based on water accumulation over time and following events such as heavy rain or flooding).

The IPEC program is based on the program description in NUREG-1801, which in turn is based on industry operating experience. As such, operating experience provides assurance that the Non-EQ Inaccessible Medium-Voltage Cable Program will manage the effects of aging such that applicable components will

continue to perform their intended functions consistent with the current licensing basis through the period of extended operation.

### Conclusion

The Non-EQ Inaccessible Medium-Voltage Cable Program will be effective for managing aging effects since it will incorporate proven monitoring techniques and industry and plant-specific operating experience. The Non-EQ Inaccessible Medium-Voltage Cable Program assures that the effects of aging will be managed such that the applicable components will continue to perform their intended functions consistent with the current licensing basis through the period of extended operation.

### **Clarification for RAI 3.1.2.2.16-1 b and RAI 3.1.2.2.16-1 Part 2**

Commitment 42 was inadvertently changed due to an administrative error in the list of regulatory commitments attached to NL-11-074. The revision had not been identified as a change to the responses to RAIs 3.1.2.2.16-1 b and RAI 3.1.2.2.16-1 Part 2 as documented in NL-11-032. These RAI responses accurately describe the intended program and associated commitment. The list of regulatory commitments has been changed to be consistent with the RAI responses.

### **Commitment 42**

IPEC will develop a plan for each unit to address the potential for cracking of the primary to secondary pressure boundary due to PWSCC of tube-to-tubesheet welds using one of the following two options.

~~Each plan will consist of two options.~~

#### Option 1 (Analysis)

IPEC will perform an analytical evaluation of the steam generator tube-to-tubesheet welds in order to establish a technical basis for either determining that the tubesheet cladding and welds are not susceptible to PWSCC, or redefining the pressure boundary in which the tube-to-tubesheet weld is no longer included and, therefore, is not required for reactor coolant pressure boundary function. The redefinition of the reactor coolant pressure boundary must be approved by the NRC as a license amendment request.

#### Option 2 (Inspection)

IPEC will perform a one-time inspection of a representative number of tube-to-tubesheet welds in each steam generator to determine if PWSCC cracking is present. If weld cracking is identified:

- a. The condition will be resolved through repair or engineering evaluation to justify continued service, as appropriate, and
- b. An ongoing monitoring program will be established to perform routine tube-to-tubesheet weld inspections for the remaining life of the steam generators.

**ATTACHMENT 2 TO NL-11-096**

**LICENSE RENEWAL APPLICATION**  
**IPEC LIST OF REGULATORY COMMITMENTS**

**Rev. 16**

**ENTERGY NUCLEAR OPERATIONS, INC.**  
**INDIAN POINT NUCLEAR GENERATING UNIT NOS. 2 & 3**  
**DOCKET NOS. 50-247 AND 50-286**

List of Regulatory Commitments

Rev. 16

The following table identifies those actions committed to by Entergy in this document.

Changes are shown as strikethroughs for ~~deletions~~ and underlines for additions.

#	COMMITMENT	IMPLEMENTATION SCHEDULE	SOURCE	RELATED LRA SECTION / AUDIT ITEM
1	Enhance the Aboveground Steel Tanks Program for IP2 and IP3 to perform thickness measurements of the bottom surfaces of the condensate storage tanks, city water tank, and fire water tanks once during the first ten years of the period of extended operation.  Enhance the Aboveground Steel Tanks Program for IP2 and IP3 to require trending of thickness measurements when material loss is detected.	IP2: September 28, 2013  IP3: December 12, 2015	NL-07-039	A.2.1.1 A.3.1.1 B.1.1
2	Enhance the Bolting Integrity Program for IP2 and IP3 to clarify that actual yield strength is used in selecting materials for low susceptibility to SCC and clarify the prohibition on use of lubricants containing MoS <sub>2</sub> for bolting.  The Bolting Integrity Program manages loss of preload and loss of material for all external bolting.	IP2: September 28, 2013  IP3: December 12, 2015	NL-07-039  NL-07-153	A.2.1.2 A.3.1.2 B.1.2  Audit Items 201, 241, 270
3	Implement the Buried Piping and Tanks Inspection Program for IP2 and IP3 as described in LRA Section B.1.6.  This new program will be implemented consistent with the corresponding program described in NUREG-1801 Section XI.M34, Buried Piping and Tanks Inspection.  Include in the Buried Piping and Tanks Inspection Program described in LRA Section B.1.6 a risk assessment of in-scope buried piping and tanks that includes consideration of the impacts of buried piping or tank leakage and of conditions affecting the risk for corrosion. Classify pipe segments and tanks as having a high, medium or low impact of leakage based on the safety class, the hazard posed by fluid contained in the piping and the impact of leakage on reliable plant operation. Determine corrosion risk through consideration of piping or tank material, soil resistivity, drainage, the presence of cathodic protection and the type of coating. Establish inspection priority and frequency for periodic inspections of the in-scope piping and tanks based on the results of the risk assessment. Perform inspections using direct visual inspection.	IP2: September 28, 2013  IP3: December 12, 2015	NL-07-039  NL-07-153  NL-09-106  NL-09-111	A.2.1.5 A.3.1.5 B.1.6 Audit Item 173



#	COMMITMENT	IMPLEMENTATION SCHEDULE	SOURCE	RELATED LRA SECTION / AUDIT ITEM
4	<p>Enhance the Diesel Fuel Monitoring Program to include cleaning and inspection of the IP2 GT-1 gas turbine fuel oil storage tanks, IP2 and IP3 EDG fuel oil day tanks, IP2 SBO/Appendix R diesel generator fuel oil day tank, and IP3 Appendix R fuel oil storage tank and day tank once every ten years.</p> <p>Enhance the Diesel Fuel Monitoring Program to include quarterly sampling and analysis of the IP2 SBO/Appendix R diesel generator fuel oil day tank, IP2 security diesel fuel oil storage tank, IP2 security diesel fuel oil day tank, and IP3 Appendix R fuel oil storage tank. Particulates, water and sediment checks will be performed on the samples. Filterable solids acceptance criterion will be less than or equal to 10mg/l. Water and sediment acceptance criterion will be less than or equal to 0.05%.</p> <p>Enhance the Diesel Fuel Monitoring Program to include thickness measurement of the bottom of the following tanks once every ten years. IP2: EDG fuel oil storage tanks, EDG fuel oil day tanks, SBO/Appendix R diesel generator fuel oil day tank, GT-1 gas turbine fuel oil storage tanks, and diesel fire pump fuel oil storage tank; IP3: EDG fuel oil day tanks, EDG fuel oil storage tanks, Appendix R fuel oil storage tank, and diesel fire pump fuel oil storage tank.</p> <p>Enhance the Diesel Fuel Monitoring Program to change the analysis for water and particulates to a quarterly frequency for the following tanks. IP2: GT-1 gas turbine fuel oil storage tanks and diesel fire pump fuel oil storage tank; IP3: Appendix R fuel oil day tank and diesel fire pump fuel oil storage tank.</p> <p>Enhance the Diesel Fuel Monitoring Program to specify acceptance criteria for thickness measurements of the fuel oil storage tanks within the scope of the program.</p> <p>Enhance the Diesel Fuel Monitoring Program to direct samples be taken and include direction to remove water when detected.</p> <p>Revise applicable procedures to direct sampling of the onsite portable fuel oil contents prior to transferring the contents to the storage tanks.</p> <p>Enhance the Diesel Fuel Monitoring Program to direct the addition of chemicals including biocide when the presence of biological activity is confirmed.</p>	<p>IP2: September 28, 2013</p> <p>IP3: December 12, 2015</p>	<p>NL-07-039</p> <p>NL-07-153</p> <p>NL-08-057</p>	<p>A.2.1.8 A.3.1.8 B.1.9</p> <p>Audit items 128, 129, 132, 491, 492, 510</p>

#	COMMITMENT	IMPLEMENTATION SCHEDULE	SOURCE	RELATED LRA SECTION / AUDIT ITEM
5	Enhance the External Surfaces Monitoring Program for IP2 and IP3 to include periodic inspections of systems in scope and subject to aging management review for license renewal in accordance with 10 CFR 54.4(a)(1) and (a)(3). Inspections shall include areas surrounding the subject systems to identify hazards to those systems. Inspections of nearby systems that could impact the subject systems will include SSCs that are in scope and subject to aging management review for license renewal in accordance with 10 CFR 54.4(a)(2).	IP2: September 28, 2013  IP3: December 12, 2015	NL-07-039	A.2.1.10 A.3.1.10 B.1.11
6	Enhance the Fatigue Monitoring Program for IP2 to monitor steady state cycles and feedwater cycles or perform an evaluation to determine monitoring is not required. Review the number of allowed events and resolve discrepancies between reference documents and monitoring procedures.  Enhance the Fatigue Monitoring Program for IP3 to include all the transients identified. Assure all fatigue analysis transients are included with the lowest limiting numbers. Update the number of design transients accumulated to date.	IP2: September 28, 2013  IP3: December 12, 2015	NL-07-039  NL-07-153	A.2.1.11 A.3.1.11 B.1.12, Audit Item 164
7	Enhance the Fire Protection Program to inspect external surfaces of the IP3 RCP oil collection systems for loss of material each refueling cycle.  Enhance the Fire Protection Program to explicitly state that the IP2 and IP3 diesel fire pump engine sub-systems (including the fuel supply line) shall be observed while the pump is running. Acceptance criteria will be revised to verify that the diesel engine does not exhibit signs of degradation while running; such as fuel oil, lube oil, coolant, or exhaust gas leakage.  Enhance the Fire Protection Program to specify that the IP2 and IP3 diesel fire pump engine carbon steel exhaust components are inspected for evidence of corrosion and cracking at least once each operating cycle.  Enhance the Fire Protection Program for IP3 to visually inspect the cable spreading room, 480V switchgear room, and EDG room CO <sub>2</sub> fire suppression system for signs of degradation, such as corrosion and mechanical damage at least once every six months.	IP2: September 28, 2013  IP3: December 12, 2015	NL-07-039	A.2.1.12 A.3.1.12 B.1.13

#	COMMITMENT	IMPLEMENTATION SCHEDULE	SOURCE	RELATED LRA SECTION / AUDIT ITEM
8	<p>Enhance the Fire Water Program to include inspection of IP2 and IP3 hose reels for evidence of corrosion. Acceptance criteria will be revised to verify no unacceptable signs of degradation.</p> <p>Enhance the Fire Water Program to replace all or test a sample of IP2 and IP3 sprinkler heads required for 10 CFR 50.48 using guidance of NFPA 25 (2002 edition), Section 5.3.1.1.1 before the end of the 50-year sprinkler head service life and at 10-year intervals thereafter during the extended period of operation to ensure that signs of degradation, such as corrosion, are detected in a timely manner.</p> <p>Enhance the Fire Water Program to perform wall thickness evaluations of IP2 and IP3 fire protection piping on system components using non-intrusive techniques (e.g., volumetric testing) to identify evidence of loss of material due to corrosion. These inspections will be performed before the end of the current operating term and at intervals thereafter during the period of extended operation. Results of the initial evaluations will be used to determine the appropriate inspection interval to ensure aging effects are identified prior to loss of intended function.</p> <p>Enhance the Fire Water Program to inspect the internal surface of foam based fire suppression tanks. Acceptance criteria will be enhanced to verify no significant corrosion.</p>	<p>IP2: September 28, 2013</p> <p>IP3: December 12, 2015</p>	<p>NL-07-039</p> <p>NL-07-153</p> <p>NL-08-014</p>	<p>A.2.1.13 A.3.1.13 B.1.14 Audit Items 105, 106</p>

#	COMMITMENT	IMPLEMENTATION SCHEDULE	SOURCE	RELATED LRA SECTION / AUDIT ITEM
9	<p>Enhance the Flux Thimble Tube Inspection Program for IP2 and IP3 to implement comparisons to wear rates identified in WCAP-12866. Include provisions to compare data to the previous performances and perform evaluations regarding change to test frequency and scope.</p> <p>Enhance the Flux Thimble Tube Inspection Program for IP2 and IP3 to specify the acceptance criteria as outlined in WCAP-12866 or other plant-specific values based on evaluation of previous test results.</p> <p>Enhance the Flux Thimble Tube Inspection Program for IP2 and IP3 to direct evaluation and performance of corrective actions based on tubes that exceed or are projected to exceed the acceptance criteria. Also stipulate that flux thimble tubes that cannot be inspected over the tube length and cannot be shown by analysis to be satisfactory for continued service, must be removed from service to ensure the integrity of the reactor coolant system pressure boundary.</p>	<p>IP2: September 28, 2013</p> <p>IP3: December 12, 2015</p>	NL-07-039	<p>A.2.1.15 A.3.1.15 B.1.16</p>

#	COMMITMENT	IMPLEMENTATION SCHEDULE	SOURCE	RELATED LRA SECTION / AUDIT ITEM
10	<p>Enhance the Heat Exchanger Monitoring Program for IP2 and IP3 to include the following heat exchangers in the scope of the program.</p> <ul style="list-style-type: none"> <li>• Safety injection pump lube oil heat exchangers</li> <li>• RHR heat exchangers</li> <li>• RHR pump seal coolers</li> <li>• Non-regenerative heat exchangers</li> <li>• Charging pump seal water heat exchangers</li> <li>• Charging pump fluid drive coolers</li> <li>• Charging pump crankcase oil coolers</li> <li>• Spent fuel pit heat exchangers</li> <li>• Secondary system steam generator sample coolers</li> <li>• Waste gas compressor heat exchangers</li> <li>• SBO/Appendix R diesel jacket water heat exchanger (IP2 only)</li> </ul> <p>Enhance the Heat Exchanger Monitoring Program for IP2 and IP3 to perform visual inspection on heat exchangers where non-destructive examination, such as eddy current inspection, is not possible due to heat exchanger design limitations.</p> <p>Enhance the Heat Exchanger Monitoring Program for IP2 and IP3 to include consideration of material-environment combinations when determining sample population of heat exchangers.</p> <p>Enhance the Heat Exchanger Monitoring Program for IP2 and IP3 to establish minimum tube wall thickness for the new heat exchangers identified in the scope of the program. Establish acceptance criteria for heat exchangers visually inspected to include no indication of tube erosion, vibration wear, corrosion, pitting, fouling, or scaling.</p>	<p>IP2: September 28, 2013</p> <p>IP3: December 12, 2015</p>	<p>NL-07-039</p> <p>NL-07-153</p> <p>NL-09-018</p>	<p>A.2.1.16 A.3.1.16 B.1.17, Audit Item 52</p>
11	Delete commitment.		NL-09-056	

#	COMMITMENT	IMPLEMENTATION SCHEDULE	SOURCE	RELATED LRA SECTION / AUDIT ITEM
12	Enhance the Masonry Wall Program for IP2 and IP3 to specify that the IP1 intake structure is included in the program.	IP2: September 28, 2013  IP3: December 12, 2015	NL-07-039	A.2.1.18 A.3.1.18 B.1.19
13	<p>Enhance the Metal-Enclosed Bus Inspection Program to add IP2 480V bus associated with substation A to the scope of bus inspected.</p> <p>Enhance the Metal-Enclosed Bus Inspection Program for IP2 and IP3 to visually inspect the external surface of MEB enclosure assemblies for loss of material at least once every 10 years. The first inspection will occur prior to the period of extended operation and the acceptance criterion will be no significant loss of material.</p> <p>Enhance the Metal-Enclosed Bus Inspection Program to add acceptance criteria for MEB internal visual inspections to include the absence of indications of dust accumulation on the bus bar, on the insulators, and in the duct, in addition to the absence of indications of moisture intrusion into the duct.</p> <p>Enhance the Metal-Enclosed Bus Inspection Program for IP2 and IP3 to inspect bolted connections at least once every five years if performed visually or at least once every ten years using quantitative measurements such as thermography or contact resistance measurements. The first inspection will occur prior to the period of extended operation.</p> <p>The plant will process a change to applicable site procedure to remove the reference to "re-torquing" connections for phase bus maintenance and bolted connection maintenance.</p>	<p>IP2: September 28, 2013</p> <p>IP3: December 12, 2015</p>	<p>NL-07-039</p> <p>NL-07-153</p> <p>NL-08-057</p>	<p>A.2.1.19 A.3.1.19 B.1.20</p> <p>Audit Items 124, 133, 519</p>
14	Implement the Non-EQ Bolted Cable Connections Program for IP2 and IP3 as described in LRA Section B.1.22.	IP2: September 28, 2013  IP3: December 12, 2015	NL-07-039	A.2.1.21 A.3.1.21 B.1.22

#	COMMITMENT	IMPLEMENTATION SCHEDULE	SOURCE	RELATED LRA SECTION / AUDIT ITEM
15	<p>Implement the Non-EQ Inaccessible Medium-Voltage Cable Program for IP2 and IP3 as described in LRA Section B.1.23.</p> <p>This new program will be implemented consistent with the corresponding program described in NUREG-1801 Section XI.E3, Inaccessible Medium-Voltage Power Cables Not Subject To 10 CFR 50.49 Environmental Qualification Requirements.</p>	<p>IP2: September 28, 2013</p> <p>IP3: December 12, 2015</p>	<p>NL-07-039</p> <p>NL-07-153</p> <p><u>NL-11-032</u></p> <p><u>NL-11-096</u></p>	<p>A.2.1.22 A.3.1.22 B.1.23 Audit item 173</p>
16	<p>Implement the Non-EQ Instrumentation Circuits Test Review Program for IP2 and IP3 as described in LRA Section B.1.24.</p> <p>This new program will be implemented consistent with the corresponding program described in NUREG-1801 Section XI.E2, Electrical Cables and Connections Not Subject to 10 CFR 50.49 Environmental Qualification Requirements Used in Instrumentation Circuits.</p>	<p>IP2: September 28, 2013</p> <p>IP3: December 12, 2015</p>	<p>NL-07-039</p> <p>NL-07-153</p>	<p>A.2.1.23 A.3.1.23 B.1.24 Audit item 173</p>
17	<p>Implement the Non-EQ Insulated Cables and Connections Program for IP2 and IP3 as described in LRA Section B.1.25.</p> <p>This new program will be implemented consistent with the corresponding program described in NUREG-1801 Section XI.E1, Electrical Cables and Connections Not Subject to 10 CFR 50.49 Environmental Qualification Requirements.</p>	<p>IP2: September 28, 2013</p> <p>IP3: December 12, 2015</p>	<p>NL-07-039</p> <p>NL-07-153</p>	<p>A.2.1.24 A.3.1.24 B.1.25 Audit item 173</p>
18	<p>Enhance the Oil Analysis Program for IP2 to sample and analyze lubricating oil used in the SBO/Appendix R diesel generator consistent with oil analysis for other site diesel generators.</p> <p>Enhance the Oil Analysis Program for IP2 and IP3 to sample and analyze generator seal oil and turbine hydraulic control oil.</p> <p>Enhance the Oil Analysis Program for IP2 and IP3 to formalize preliminary oil screening for water and particulates and laboratory analyses including defined acceptance criteria for all components included in the scope of this program. The program will specify corrective actions in the event acceptance criteria are not met.</p> <p>Enhance the Oil Analysis Program for IP2 and IP3 to formalize trending of preliminary oil screening results as well as data provided from independent laboratories.</p>	<p>IP2: September 28, 2013</p> <p>IP3: December 12, 2015</p>	<p>NL-07-039</p>	<p>A.2.1.25 A.3.1.25 B.1.26</p>

#	COMMITMENT	IMPLEMENTATION SCHEDULE	SOURCE	RELATED LRA SECTION / AUDIT ITEM
19	Implement the One-Time Inspection Program for IP2 and IP3 as described in LRA Section B.1.27.  This new program will be implemented consistent with the corresponding program described in NUREG-1801, Section XI.M32, One-Time Inspection.	IP2: September 28, 2013  IP3: December 12, 2015	NL-07-039  NL-07-153	A.2.1.26 A.3.1.26 B.1.27 Audit item 173
20	Implement the One-Time Inspection – Small Bore Piping Program for IP2 and IP3 as described in LRA Section B.1.28.  This new program will be implemented consistent with the corresponding program described in NUREG-1801, Section XI.M35, One-Time Inspection of ASME Code Class I Small-Bore Piping.	IP2: September 28, 2013  IP3: December 12, 2015	NL-07-039  NL-07-153	A.2.1.27 A.3.1.27 B.1.28 Audit item 173
21	Enhance the Periodic Surveillance and Preventive Maintenance Program for IP2 and IP3 as necessary to assure that the effects of aging will be managed such that applicable components will continue to perform their intended functions consistent with the current licensing basis through the period of extended operation.	IP2: September 28, 2013  IP3: December 12, 2015	NL-07-039	A.2.1.28 A.3.1.28 B.1.29
22	Enhance the Reactor Vessel Surveillance Program for IP2 and IP3 revising the specimen capsule withdrawal schedules to draw and test a standby capsule to cover the peak reactor vessel fluence expected through the end of the period of extended operation.  Enhance the Reactor Vessel Surveillance Program for IP2 and IP3 to require that tested and untested specimens from all capsules pulled from the reactor vessel are maintained in storage.	IP2: September 28, 2013  IP3: December 12, 2015	NL-07-039	A.2.1.31 A.3.1.31 B.1.32
23	Implement the Selective Leaching Program for IP2 and IP3 as described in LRA Section B.1.33.  This new program will be implemented consistent with the corresponding program described in NUREG-1801, Section XI.M33 Selective Leaching of Materials.	IP2: September 28, 2013  IP3: December 12, 2015	NL-07-039  NL-07-153	A.2.1.32 A.3.1.32 B.1.33 Audit item 173
24	Enhance the Steam Generator Integrity Program for IP2 and IP3 to require that the results of the condition monitoring assessment are compared to the operational assessment performed for the prior operating cycle with differences evaluated.	IP2: September 28, 2013  IP3: December 12, 2015	NL-07-039	A.2.1.34 A.3.1.34 B.1.35



#	COMMITMENT	IMPLEMENTATION SCHEDULE	SOURCE	RELATED LRA SECTION / AUDIT ITEM
25	<p>Enhance the Structures Monitoring Program to explicitly specify that the following structures are included in the program.</p> <ul style="list-style-type: none"> <li>• Appendix R diesel generator foundation (IP3)</li> <li>• Appendix R diesel generator fuel oil tank vault (IP3)</li> <li>• Appendix R diesel generator switchgear and enclosure (IP3)</li> <li>• city water storage tank foundation</li> <li>• condensate storage tanks foundation (IP3)</li> <li>• containment access facility and annex (IP3)</li> <li>• discharge canal (IP2/3)</li> <li>• emergency lighting poles and foundations (IP2/3)</li> <li>• fire pumphouse (IP2)</li> <li>• fire protection pumphouse (IP3)</li> <li>• fire water storage tank foundations (IP2/3)</li> <li>• gas turbine 1 fuel storage tank foundation</li> <li>• maintenance and outage building-elevated passageway (IP2)</li> <li>• new station security building (IP2)</li> <li>• nuclear service building (IP1)</li> <li>• primary water storage tank foundation (IP3)</li> <li>• refueling water storage tank foundation (IP3)</li> <li>• security access and office building (IP3)</li> <li>• service water pipe chase (IP2/3)</li> <li>• service water valve pit (IP3)</li> <li>• superheater stack</li> <li>• transformer/switchyard support structures (IP2)</li> <li>• waste holdup tank pits (IP2/3)</li> </ul> <p>Enhance the Structures Monitoring Program for IP2 and IP3 to clarify that in addition to structural steel and concrete, the following commodities (including their anchorages) are inspected for each structure as applicable.</p> <ul style="list-style-type: none"> <li>• cable trays and supports</li> <li>• concrete portion of reactor vessel supports</li> <li>• conduits and supports</li> <li>• cranes, rails and girders</li> <li>• equipment pads and foundations</li> <li>• fire proofing (pyrocrete)</li> <li>• HVAC duct supports</li> <li>• jib cranes</li> <li>• manholes and duct banks</li> <li>• manways, hatches and hatch covers</li> <li>• monorails</li> </ul>	<p>IP2: September 28, 2013</p> <p>IP3: December 12, 2015</p>	<p>NL-07-039</p> <p>NL-07-153</p> <p>NL-08-057</p>	<p>A.2.1.35 A.3.1.35 B.1.36</p> <p>Audit items 86, 87, 88, 417</p>



#	COMMITMENT	IMPLEMENTATION SCHEDULE	SOURCE	RELATED LRA SECTION / AUDIT ITEM
	Enhance the Structures Monitoring Program to include more detailed quantitative acceptance criteria for inspections of concrete structures in accordance with ACI 349.3R, "Evaluation of Existing Nuclear Safety-Related Concrete Structures" prior to the period of extended operation (PEO).		NL-11-032	
26	Implement the Thermal Aging Embrittlement of Cast Austenitic Stainless Steel (CASS) Program for IP2 and IP3 as described in LRA Section B.1.37.  This new program will be implemented consistent with the corresponding program described in NUREG-1801, Section XI.M12, Thermal Aging Embrittlement of Cast Austenitic Stainless Steel (CASS) Program.	IP2: September 28, 2013  IP3: December 12, 2015	NL-07-039  NL-07-153	A.2.1.36 A.3.1.36 B.1.37 Audit item 173
27	Implement the Thermal Aging and Neutron Irradiation Embrittlement of Cast Austenitic Stainless Steel (CASS) Program for IP2 and IP3 as described in LRA Section B.1.38.  This new program will be implemented consistent with the corresponding program described in NUREG-1801 Section XI.M13, Thermal Aging and Neutron Embrittlement of Cast Austenitic Stainless Steel (CASS) Program.	IP2: September 28, 2013  IP3: December 12, 2015	NL-07-039  NL-07-153	A.2.1.37 A.3.1.37 B.1.38 Audit item 173
28	Enhance the Water Chemistry Control – Closed Cooling Water Program to maintain water chemistry of the IP2 SBO/Appendix R diesel generator cooling system per EPRI guidelines.  Enhance the Water Chemistry Control – Closed Cooling Water Program to maintain the IP2 and IP3 security generator and fire protection diesel cooling water pH and glycol within limits specified by EPRI guidelines.	IP2: September 28, 2013  IP3: December 12, 2015	NL-07-039  NL-08-057	A.2.1.39 A.3.1.39 B.1.40 Audit item 509
29	Enhance the Water Chemistry Control – Primary and Secondary Program for IP2 to test sulfates monthly in the RWST with a limit of <150 ppb.	IP2: September 28, 2013	NL-07-039	A.2.1.40 B.1.41
30	For aging management of the reactor vessel internals, IPEC will (1) participate in the industry programs for investigating and managing aging effects on reactor internals; (2) evaluate and implement the results of the industry programs as applicable to the reactor internals; and (3) upon completion of these programs, but not less than 24 months before entering the period of extended operation, submit an inspection plan for reactor internals to the NRC for review and approval.	IP2: September 28, 2011  IP3: December 12, 2013	NL-07-039	A.2.1.41 A.3.1.41

#	COMMITMENT	IMPLEMENTATION SCHEDULE	SOURCE	RELATED LRA SECTION / AUDIT ITEM
31	Additional P-T curves will be submitted as required per 10 CFR 50, Appendix G prior to the period of extended operation as part of the Reactor Vessel Surveillance Program.	IP2: September 28, 2013  IP3: December 12, 2015	NL-07-039	A.2.2.1.2 A.3.2.1.2 4.2.3
32	As required by 10 CFR 50.61(b)(4), IP3 will submit a plant-specific safety analysis for plate B2803-3 to the NRC three years prior to reaching the RT <sub>PTS</sub> screening criterion. Alternatively, the site may choose to implement the revised PTS rule when approved.	IP3: December 12, 2015	NL-07-039  NL-08-127	A.3.2.1.4 4.2.5
33	<p>At least 2 years prior to entering the period of extended operation, for the locations identified in LRA Table 4.3-13 (IP2) and LRA Table 4.3-14 (IP3), under the Fatigue Monitoring Program, IP2 and IP3 will implement one or more of the following:</p> <p>(1) Consistent with the Fatigue Monitoring Program, Detection of Aging Effects, update the fatigue usage calculations using refined fatigue analyses to determine valid CUFs less than 1.0 when accounting for the effects of reactor water environment. This includes applying the appropriate Fen factors to valid CUFs determined in accordance with one of the following:</p> <ol style="list-style-type: none"> <li>1. For locations in LRA Table 4.3-13 (IP2) and LRA Table 4.3-14 (IP3), with existing fatigue analysis valid for the period of extended operation, use the existing CUF.</li> <li>2. Additional plant-specific locations with a valid CUF may be evaluated. In particular, the pressurizer lower shell will be reviewed to ensure the surge nozzle remains the limiting component.</li> <li>3. Representative CUF values from other plants, adjusted to or enveloping the IPEC plant specific external loads may be used if demonstrated applicable to IPEC.</li> <li>4. An analysis using an NRC-approved version of the ASME code or NRC-approved alternative (e.g., NRC-approved code case) may be performed to determine a valid CUF.</li> </ol> <p>(2) Consistent with the Fatigue Monitoring Program, Corrective Actions, repair or replace the affected locations before exceeding a CUF of 1.0.</p>	<p>IP2: September 28, 2011</p> <p>IP3: December 12, 2013</p> <p>Complete</p>	<p>NL-07-039</p> <p>NL-07-153</p> <p>NL-08-021</p> <p>NL-10-082</p>	<p>A.2.2.2.3 A.3.2.2.3 4.3.3 Audit item 146</p>

#	COMMITMENT	IMPLEMENTATION SCHEDULE	SOURCE	RELATED LRA SECTION / AUDIT ITEM
34	IP2 SBO / Appendix R diesel generator will be installed and operational by April 30, 2008. This committed change to the facility meets the requirements of 10 CFR 50.59I(1) and, therefore, a license amendment pursuant to 10 CFR 50.90 is not required.	April 30, 2008  Complete	NL-07-078  NL-08-074	2.1.1.3.5
35	Perform a one-time inspection of representative sample area of IP2 containment liner affected by the 1973 event behind the insulation, prior to entering the extended period of operation, to assure liner degradation is not occurring in this area.  Perform a one-time inspection of representative sample area of the IP3 containment steel liner at the juncture with the concrete floor slab, prior to entering the extended period of operation, to assure liner degradation is not occurring in this area.  Any degradation will be evaluated for updating of the containment liner analyses as needed.	IP2: September 28, 2013  IP3: December 12, 2015	NL-08-127   NL-09-018	Audit Item 27
36	Perform a one-time inspection and evaluation of a sample of potentially affected IP2 refueling cavity concrete prior to the period of extended operation. The sample will be obtained by core boring the refueling cavity wall in an area that is susceptible to exposure to borated water leakage. The inspection will include an assessment of embedded reinforcing steel.  Additional core bore samples will be taken, if the leakage is not stopped, prior to the end of the first ten years of the period of extended operation.  A sample of leakage fluid will be analyzed to determine the composition of the fluid. If additional core samples are taken prior to the end of the first ten years of the period of extended operation, a sample of leakage fluid will be analyzed.	IP2: September 28, 2013	NL-08-127   NL-09-056  NL-09-079	Audit Item 359
37	Enhance the Containment Inservice Inspection (CII-IWL) Program to include inspections of the containment using enhanced characterization of degradation (i.e., quantifying the dimensions of noted indications through the use of optical aids) during the period of extended operation. The enhancement includes obtaining critical dimensional data of degradation where possible through direct measurement or the use of scaling technologies for photographs, and the use of consistent vantage points for visual inspections.	IP2: September 28, 2013  IP3: December 12, 2015	NL-08-127	Audit Item 361

#	COMMITMENT	IMPLEMENTATION SCHEDULE	SOURCE	RELATED LRA SECTION / AUDIT ITEM
38	For Reactor Vessel Fluence, should future core loading patterns invalidate the basis for the projected values of RTpts or C <sub>v</sub> USE, updated calculations will be provided to the NRC.	IP2: September 28, 2013  IP3: December 12, 2015	NL-08-143	4.2.1
39	Deleted		NL-09-079	
40	Evaluate plant specific and appropriate industry operating experience and incorporate lessons learned in establishing appropriate monitoring and inspection frequencies to assess aging effects for the new aging management programs. Documentation of the operating experience evaluated for each new program will be available on site for NRC review prior to the period of extended operation.	IP2: September 28, 2013  IP3: December 12, 2015	NL-09-106	B.1.6 B.1.22 B.1.23 B.1.24 B.1.25 B.1.27 B.1.28 B.1.33 B.1.37 B.1.38
41	IPEC will perform an inspection of steam generators for both units to assess the condition of the divider plate assembly. The examination technique used will be capable of detecting PWSCC in the steam generator divider plate assemblies. The IP2 steam generator divider plate inspections will be completed within the first ten years of the period of extended operation (PEO). The IP3 steam generator divider plate inspections will be completed within the first refueling outage following the beginning of the PEO.	IP2: After the beginning of the PEO and prior to September 28, 2023  IP3: Prior to the end of the first refueling outage following the beginning of the PEO.	NL-11-032  NL-11-074  NL-11-090	N/A

#	COMMITMENT	IMPLEMENTATION SCHEDULE	SOURCE	RELATED LRA SECTION / AUDIT ITEM
42	<p>IPEC will develop a plan for each unit to address the potential for cracking of the primary to secondary pressure boundary due to PWSCC of tube-to-tubesheet welds <u>using one of the following two options.</u></p> <p><del>Each plan will consist of two options.</del></p> <p>Option 1 (Analysis)</p> <p>IPEC will perform an analytical evaluation <u>of the steam generator tube-to-tubesheet welds in order to establish a technical basis for either determining that the tubesheet cladding and welds are not susceptible to PWSCC, or redefining the pressure boundary in which the tube-to-tubesheet weld is no longer included and, therefore, is not required for reactor coolant pressure boundary function. The redefinition of the reactor coolant pressure boundary must be approved by the NRC as a license amendment request.</u></p> <p>Option 2 (Inspection)</p> <p>IPEC will perform a one-time inspection of a representative number of tube-to-tubesheet welds in each steam generator to determine if PWSCC cracking is present. If weld cracking is identified:</p> <ol style="list-style-type: none"> <li>The condition will be resolved through repair or engineering evaluation to justify continued service, as appropriate, and</li> <li>An ongoing monitoring program will be established to perform routine tube-to-tubesheet weld inspections for the remaining life of the steam generators.</li> </ol>	<p>IP2: Prior to March 2024</p> <p>IP3: Prior to the end of the first refueling outage following the beginning of the PEO.</p> <p>IP2: Between March 2020 and March 2024</p> <p>IP3: Prior to the end of the first refueling outage following the beginning of the PEO.</p>	<p>NL-11-032</p> <p>NL-11-074</p> <p>NL-11-090</p> <p><u>NL-11-096</u></p>	<p>N/A</p>
43	<p>IPEC will review design basis ASME Code Class 1 fatigue evaluations to determine whether the NUREG/CR-6260 locations that have been evaluated for the effects of the reactor coolant environment on fatigue usage are the limiting locations for the IP2 and IP3 configurations. If more limiting locations are identified, the most limiting location will be evaluated for the effects of the reactor coolant environment on fatigue usage.</p> <p>IPEC will use the NUREG/CR-6909 methodology in the evaluation of the limiting locations consisting of nickel alloy, if any.</p>	<p>IP2: Prior to September 28, 2013</p> <p>IP3: Prior to December 12, 2015</p>	<p>NL-11-032</p>	<p>4.3.3</p>

#	COMMITMENT	IMPLEMENTATION SCHEDULE	SOURCE	RELATED LRA SECTION / AUDIT ITEM
44	IPEC will include written explanation and justification of any user intervention in future evaluations using the WESTEMS "Design CUF" module.	Within 60 days of issuance of the renewed operating license.	NL-11-032	N/A
45	IPEC will not use the NB-3600 option of the WESTEMS program in future design calculations until the issues identified during the NRC review of the program has been resolved.	Within 60 days of issuance of the renewed operating license.	NL-11-032	N/A
46	<p>Include in the IP2 ISI Program that IPEC will perform twenty-five volumetric weld metal inspections of socket welds during each 10-year ISI interval scheduled as specified by IWB-2412 of the ASME Section XI Code during the period of extended operation.</p> <p>In lieu of volumetric examinations, destructive examinations may be performed, where one destructive examination may be substituted for two volumetric examinations.</p>	IP2: Prior to September 28, 2013	<p>NL-11-032</p> <p>NL-11-074</p>	N/A