

RS-18-110

10 CFR 50.90

10 CFR 50.69

September 13, 2018

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

Braidwood Station, Units 1 and 2
Renewed Facility Operating License Nos. NPF-72 and NPF-77
NRC Docket Nos. 50-456 and 50-457

Byron Station, Units 1 and 2
Renewed Facility Operating License Nos. NPF-37 and NPF-66
NRC Docket Nos. 50-454 and 50-455

Subject: Supplement to License Amendment Request to Adopt 10 CFR 50.69

- References:
1. Letter from David M. Gullott (Exelon Generation Company, LLC) to U.S. NRC, "Application to Adopt 10 CFR 50.69, 'Risk-informed categorization and treatment of structures, systems, and components for nuclear power reactors'," dated September 1, 2017
 2. Letter from David M. Gullott (Exelon Generation Company, LLC) to U.S. NRC, "Correction to License Amendment Request to Adopt 10 CFR 50.69, 'Risk-informed categorization and treatment of structures, systems, and components for nuclear power reactors'," dated April 4, 2018
 3. Email from J. Wiebe (U.S. NRC) to R. Sprengel (Exelon Generation Company, LLC), "Preliminary RAIs for Braidwood and Byron Stations 50.69 Amendment," dated May 9, 2018
 4. Letter from David M. Gullott (Exelon Generation Company, LLC) to U.S. NRC, "Response to Request for Additional Information Regarding Braidwood and Byron Stations 50.69 Amendment," dated June 13, 2018

By letter dated September 1, 2017 (Reference 1), Exelon Generation Company, LLC (EGC) requested an amendment to Renewed Facility Operating License Nos. NPF-72 and NPF-77 for Braidwood Station, Units 1 and 2, and Renewed Facility Operating License Nos. NPF-37 and NPF-66 for Byron Station, Units 1 and 2. Reference 2 provided revised text to the Reference 1

submittal. The proposed amendment would modify the licensing basis by the addition of a license condition to allow for the implementation of the provisions of Title 10 of the Code of Federal Regulations (10 CFR), Part 50.69, "Risk-informed categorization and treatment of structures, systems and components for nuclear power reactors."

In a letter dated June 13, 2018 (Reference 4), EGC replied to a request for additional information (RAI) by the NRC (Reference 3). In the response to RAI 12, EGC provided a list of items required to be completed prior to implementation of the 10 CFR 50.69 risk categorization process.

Attachment 1 of this letter provides a revised list of items required to be completed prior to implementation of the 10 CFR 50.69 risk categorization process, which supersedes the list in Reference 4. In addition, Attachments 2 and 3 provide revised wording for the proposed license condition along with markups of the Braidwood, Units 1 and 2, and Byron, Units 1 and 2, Renewed Facility Operating Licenses.

EGC has reviewed the information supporting the No Significant Hazards Consideration and the Environmental Consideration that was previously provided to the NRC in Reference 1. The additional information provided in the submittal does not affect the conclusion that the proposed license amendment does not involve a significant hazards consideration. This additional information also does not affect the conclusion that neither an environmental impact statement nor an environmental assessment need be prepared in support of the proposed amendment.

In accordance with 10 CFR 50.91, "Notice for public comment; State consultation," paragraph (b), EGC is notifying the State of Illinois of this supplement to the application for license amendment by transmitting a copy of this letter and its attachment to the designated State Official.

This letter contains no regulatory commitments. Should you have any questions concerning this letter, please contact Mr. Kenneth M. Nicely at (630) 657-2803.

I declare under penalty of perjury that the foregoing is true and correct. Executed on the 13th day of September 2018.

Respectfully,



David M. Gullott
Manager – Licensing
Exelon Generation Company, LLC

Attachments:

1. Revised List of Implementation Items
2. Markup of Proposed Renewed Facility Operating License (RFOL) Pages for Braidwood Station
3. Markup of Proposed Renewed Facility Operating License (RFOL) Pages for Byron Station

cc: NRC Regional Administrator, Region III
NRC Senior Resident Inspector – Braidwood Station
NRC Senior Resident Inspector – Byron Station
Illinois Emergency Management Agency – Division of Nuclear Safety

Attachment 1

Revised List of Implementation Items

- 3.a The internal events and fire PRA models will be updated to model heating, ventilation and air conditioning (HVAC) dependency for High Energy Line Break (HELB) scenarios prior to implementation of the 10 CFR 50.69 risk categorization process.
- 3.b The FPRA models for Byron and Braidwood will be updated to incorporate failures required to account for instances where breaker coordination cannot be confirmed prior to implementation of the 10 CFR 50.69 risk categorization process.
- 3.c To ensure that the impact of the CCDP and CLERP scaling factor adjustments, used for crediting alternate shutdown given abandonment of the MCR, is accounted for in the categorization process, a Fire PRA sensitivity that removes the scaling factor adjustments will be performed during the 10 CFR 50.69 categorization process, in addition to the sensitivities required by NEI 00-04 Table 5-3. If the Fire PRA is updated in the future to eliminate the scaling factor adjustment, this sensitivity calculation would no longer be required.
- 3.d Identification of all wall mounted panel configurations with four or more switches will be completed and any resulting changes to the Byron and Braidwood FPRA models to incorporate the impact of these panels will be made prior to implementation of the 10 CFR 50.69 risk categorization process.
- 3.e The Byron and Braidwood FPRA models that will be used for 10 CFR 50.69 implementation will include a new sump clogging value consistent with the WCAP-16362-NP guidance.
- 8.c The Byron and Braidwood Fire PRAs to be used to support the implementation of the 50.69 categorization will retain a 1 E-06 joint HEP floor value and justification will be included in the Fire PRA documentation for specific HEP combinations for which a value of less than 1 E-05 is used.
- 11 The additional failure contribution of the Westinghouse RCP Shutdown Seal Bypass failure mode will be added to the Byron and Braidwood Internal Events and Fire PRA models, consistent with the limitations and conditions in the NRC safety evaluation for PWROG-140001-P, Revision 1 (ADAMS Accession Number ML17200A116), prior to implementation of the 10 CFR 50.69 risk categorization process.

Attachment 2

**Braidwood Station, Units 1 and 2
NRC Docket Nos. 50-456 and 50-457**

**Application to Adopt 10 CFR 50.69, Risk-Informed Categorization and Treatment of
Structures, Systems, and Components for Nuclear Power Reactors**

Markup of Proposed Renewed Facility Operating License (RFOL) Pages

Braidwood Unit 1 RFOL Page

Page 7

Braidwood Unit 2 RFOL Page

Page 7

1. The licensee shall implement those new programs and enhancements to existing programs no later than April 17, 2026.
2. The licensee shall complete those activities as noted in the Commitments applicable to Braidwood Unit 1 in this Supplement no later than April 17, 2026 or the end of the last refueling outage prior to the period of extended operation, whichever occurs later.
3. The licensee shall notify the NRC in writing within 30 days after having accomplished item (b)1 above and include the status of those activities that have been or remain to be completed in item (b)2 above.

(c) The flux thimble tube corrective actions, inspections, and replacements identified in the SER, Commitment No. 24, for Braidwood Units 1 and 2, shall be implemented in accordance with the schedule in the Commitment. Periodic eddy current testing/inspections of all flux thimble tubes shall be performed at least every two refueling outages, and the data shall be trended and retained in auditable form. A flux thimble tube shall not remain in service for more than two (2) operating fuel cycles without successful completion of eddy current testing for that thimble tube.

Add Insert 1

(14)

- D. An exemption was previously granted pursuant to 10 CFR 70.24. The exemption was granted with NRC materials license No. SNM-1938, issued October 8, 1985, and relieved the licensee from the requirement of having a criticality alarm system. Therefore, the licensee is exempted from the criticality alarm system provision of 10 CFR 70.24 so far as this section applies to the storage of fuel assemblies held under this license.
- E. The licensee shall implement and maintain in effect all provisions of the approved fire protection program as described in the Final Safety Analysis Report, as supplemented and amended, and as approved in the SER dated November 1983 and its supplements, subject to the following provision:

The licensee may make changes to the approved fire protection program without prior approval of the Commission, only if those changes would not adversely affect the ability to achieve and maintain safe shutdown in the event of a fire.

2. The licensee shall complete those activities as noted in the Commitments applicable to Braidwood Unit 2 in this Supplement no later than June 18, 2027 or the end of the last refueling outage prior to the period of extended operation, whichever occurs later.
3. The licensee shall notify the NRC in writing within 30 days after having accomplished item (b)1 above and include the status of those activities that have been or remain to be completed in item (b)2 above.

(c) The flux thimble tube corrective actions, inspections, and replacements identified in the SER, Commitment No. 24, for Braidwood Units 1 and 2, shall be implemented in accordance with the schedule in the Commitment. Periodic eddy current testing/inspections of all flux thimble tubes shall be performed at least every two refueling outages, and the data shall be trended and retained in auditable form. A flux thimble tube shall not remain in service for more than two (2) operating fuel cycles without successful completion of eddy current testing for that thimble tube.

(d) The Braidwood Unit 2 reactor head closure stud hole location No. 35 will be repaired no later than June 18, 2027, or before the end of the last refueling outage prior to the period of extended operation (whichever occurs later), so that all 54 reactor head closure studs are operable and tensioned during the period of extended operation.

Add Insert 1

(13)

- D. An exemption was previously granted pursuant to 10 CFR 70.24. The exemption was granted with NRC materials license No. SNM-1938, issued October 8, 1985, and relieved the licensee from the requirement of having a criticality alarm system. Therefore, the licensee is exempted from the criticality alarm system provision of 10 CFR 70.24 so far as this section applies to the storage of fuel assemblies held under this license.

Insert 1

Adoption of 10 CFR 50.69, "Risk-informed categorization and treatment of structures, systems, and components for nuclear power plants"

Exelon is approved to implement 10 CFR 50.69 using the processes for categorization of Risk-Informed Safety Class (RISC)-1, RISC-2, RISC-3, and RISC-4 structures, systems, and components (SSCs) using:

Probabilistic Risk Assessment (PRA) models to evaluate risk associated with internal events, including internal flooding, and internal fire; the shutdown safety assessment process to assess shutdown risk; the Arkansas Nuclear One, Unit 2 (ANO-2) passive categorization method to assess passive component risk for Class 2, Class 3, and non-Code class SSCs and their associated supports; and the results of non-PRA evaluations that are based on the IPEEE Screening Assessment for External Hazards, i.e., seismic margin analysis (SMA) to evaluate seismic risk, and a screening of other external hazards updated using the external hazard screening significance process identified in ASME/ANS PRA Standard RA-Sa-2009; as specified in the license amendment No. [XX] (Unit X) and No. [XX] (Unit X), dated [DATE].

Exelon will complete the updated implementation items listed in Attachment 1 of Exelon letter to NRC dated September 13, 2018, prior to implementation of 10 CFR 50.69. All issues identified in the attachment will be addressed and any associated changes will be made, focused scope peer reviews will be performed on changes that are PRA upgrades as defined in the PRA standard (ASME/ANS RA-Sa-2009, as endorsed by RG 1.200, Revision 2), and any findings will be resolved and reflected in the PRA of record prior to implementation of the 10 CFR 50.69 categorization process.

Prior NRC approval, under 10 CFR 50.90, is required for a change to the categorization process specified above (e.g., change from a seismic margins approach to a seismic probabilistic risk assessment approach).

Attachment 3

**Byron Station, Units 1 and 2
NRC Docket Nos. 50-454 and 50-455**

**Application to Adopt 10 CFR 50.69, Risk-Informed Categorization and Treatment of
Structures, Systems, and Components for Nuclear Power Reactors**

Markup of Proposed Renewed Facility Operating License (RFOL) Pages

Byron Unit 1 RFOL Page

Page 7

Byron Unit 2 RFOL Page

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(23) License Renewal License Conditions

(a) The information in the UFSAR supplement, submitted pursuant to 10 CFR 54.21(d), as revised during the license renewal application review process, and as supplemented by the Commitments applicable to Byron Unit 1 in Appendix A of the "Safety Evaluation Report Related to the License Renewal of Byron Station, Units 1 and 2, and Braidwood Station, Units 1 and 2" (SER) dated July 2015, is collectively the "License Renewal UFSAR Supplement." This Supplement is henceforth part of the UFSAR which will be updated in accordance with 10 CFR 50.71(e). As such, the licensee may make changes to the programs and activities applicable to Byron Unit 1 described in this Supplement provided the licensee evaluates such changes pursuant to the criteria set forth in 10 CFR 50.59 and otherwise complies with the requirements in that section.

(b) This License Renewal UFSAR Supplement, as revised per License Condition 23(a) above, describes certain programs to be implemented and activities to be completed prior to the period of extended operation.

1. The licensee shall implement those new programs and enhancements to existing programs no later than April 30, 2024.
2. The licensee shall complete those activities as noted in the Commitments applicable to Byron Unit 1 in this Supplement no later than April 30, 2024 or the end of the last refueling outage prior to the period of extended operation, whichever occurs later.
3. The licensee shall notify the NRC in writing within 30 days after having accomplished item (b)1 above and include the status of those activities that have been or remain to be completed in item (b)2 above.

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Add Insert 1

(13)

3. The licensee shall notify the NRC in writing within 30 days after having accomplished item (b)1 above and include the status of those activities that have been or remain to be completed in item (b)2 above.
- D. The facility requires no exemptions from the requirements of 10 CFR Part 50.
- An exemption was previously granted pursuant to 10 CFR 70.24. The exemption was granted with NRC materials license No. SNM-1916, issued March 4, 1985, and relieved the licensee from the requirement of having a criticality alarm system. Therefore, the licensee is exempted from the criticality alarm system provision of 10 CFR 70.24 so far as this section applies to the storage of fuel assemblies held under this license.
- E. The licensee shall implement and maintain in effect all provisions of the approved fire protection program as described in the licensee's Fire Protection Report and the licensee's letters dated September 23, 1986, October 23, 1986, November 3, 1986, December 12 and 15, 1986, and January 21, 1987, and as approved in the SER dated February 1982 through Supplement No. 8, subject to the following provision:
- The licensee may make changes to the approved fire protection program without prior approval of the Commission only if those changes would not adversely affect the ability to achieve and maintain safe shutdown in the event of a fire.
- F. Exelon Generation Company shall fully implement and maintain in effect all provisions of the Commission-approved physical security, training and qualifications, and safeguards contingency plans including amendments made pursuant to provisions of the Miscellaneous Amendments and Search Requirements revisions to 10 CFR 73.55 (51 FR 27817 and 27822), and the authority of 10 CFR 50.90 and 10 CFR 50.54(p). The combined set of plans¹, which contain Safeguards Information protected under 10 CFR 73.21, is entitled: "Byron Nuclear Power Station Security Plan, Training and Qualification Plan, and Safeguards Contingency Plan, Revision 3," submitted by letter dated May 17, 2006.
- Exelon Generation Company shall fully implement and maintain in effect all provisions of the Commission-approved cyber security plan (CSP), including changes made pursuant to the authority of 10 CFR 50.90 and 10 CFR 50.54(p). The Exelon Generation Company CSP was approved by License Amendment No.175 and modified by License Amendment No. 191.
- G. Deleted

¹The training and Qualification Plan and Safeguards Contingency Plan are Appendices to the Security Plan.

Insert 1

Adoption of 10 CFR 50.69, "Risk-informed categorization and treatment of structures, systems, and components for nuclear power plants"

Exelon is approved to implement 10 CFR 50.69 using the processes for categorization of Risk-Informed Safety Class (RISC)-1, RISC-2, RISC-3, and RISC-4 structures, systems, and components (SSCs) using:

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Prior NRC approval, under 10 CFR 50.90, is required for a change to the categorization process specified above (e.g., change from a seismic margins approach to a seismic probabilistic risk assessment approach).