



Order No. EA-12-049

RS-15-083

February 26, 2015

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

Braidwood Station, Unit 1
Facility Operating License No. NPF-72
NRC Docket No. STN 50-456

Subject: Request for Schedule Relief/Relaxation from NRC Order EA-12-049, "Order Modifying Licenses With Regard To Requirements For Mitigation Strategies For Beyond-Design-Basis External Events"

References:

1. NRC Order EA-12-049, "Issuance of Order to Modify Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events," dated March 12, 2012
2. Exelon Generation Company, LLC letter to USNRC, "Overall Integrated Plan in Response to March 12, 2012 Commission Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (Order EA-12-049)," dated February 28, 2013 (RS-13-017)
3. Westinghouse Nuclear Safety Advisory Letter NSAL 14-1, "Impact of Reactor Coolant Pump No. 1 Seal Leakoff Piping on Reactor Coolant Pump Seal Leakage During a Loss of All Seal Cooling," dated February 10, 2014

On March 12, 2012, the Nuclear Regulatory Commission (NRC) issued Order EA-12-049 (Reference 1) to Exelon Generation Company, LLC (EGC). NRC Order EA-12-049 was immediately effective and directed EGC to develop, implement, and maintain guidance and strategies to maintain or restore core cooling, containment cooling, and spent fuel pool cooling capabilities in the event of a beyond-design-basis external event. This letter transmits a request for relaxation from the requirements of NRC Order EA-12-049 for Braidwood Station, Unit 1.

As described in the Overall Integrated Plan (Reference 2), the Braidwood Station mitigation strategies are based on generic Westinghouse reactor coolant pump (RCP) seal leakage rates. In response to Westinghouse Nuclear Safety Advisory Letter (NSAL) 14-1 (Reference 3), Westinghouse has conservatively re-calculated leakage rates applicable to Braidwood Station and determined that they are not enveloped by the generic leakage values. The Pressurized Water Reactor Owners Group (PWROG) is performing additional evaluations to refine RCP seal leakage projections, which are part of the technical bases for demonstrating Braidwood Station compliance with the requirements of NRC Order EA-12-049. The current schedule requirement for Braidwood Station, Unit 1 implementation of NRC Order EA-12-049 is prior to restart from

the A1R18 refueling outage in April 2015. The requested relaxation would defer full implementation of NRC Order EA-12-049 by one refueling cycle to prior to restart from the A1R19 refueling outage in Fall 2016. The requested relaxation would enable EGC to develop and incorporate an analytical basis for RCP seal leakage values and resolve RCP #1 Seal leakoff line pressure concerns. Resolution may involve analytical justifications to bring the plant into FLEX compliance. EGC is proceeding with completion of other design, equipment procurement, and programmatic changes to support the ability to implement the Braidwood Station, Unit 1 mitigation strategies which will be completed and implemented prior to restart from the Braidwood Station, Unit 1 refueling outage in Fall 2016.

Section IV of NRC Order EA-12-049 (Reference 1) states that licensees proposing to deviate from requirements contained in NRC Order EA-12-049 may request that the Director, Office of Nuclear Reactor Regulation, relax those requirements.

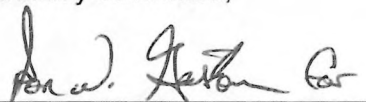
In accordance with Section IV of NRC Order EA-12-049, EGC is requesting that the Director, Office of Nuclear Reactor Regulation, relax the requirement for completion of full implementation as prescribed in Section IV.A.2 of NRC Order EA-12-049 as described in the attachment to this letter.

EGC considers that, upon approval by the NRC, the alternative full implementation date regarding NRC Order EA-12-049 proposed in the attachment will constitute a condition of the NRC Order EA-12-049 for Braidwood Station, Unit 1. Therefore, there are no new regulatory commitments contained in this letter.

If you have any questions regarding this request, please contact David P. Helker at 610-765-5525.

I declare under penalty of perjury that the foregoing is true and correct. Executed on the 26th day of February 2015.

Respectfully submitted,



Glen T. Kaegi
Director - Licensing & Regulatory Affairs
Exelon Generation Company, LLC

Attachment:

Request for Relaxation of NRC Order EA-12-049 Requirement IV.A.2 for Braidwood Station, Unit 1

cc: Director, Office of Nuclear Reactor Regulation
NRC Regional Administrator - Region III
NRC Senior Resident Inspector – Braidwood Station
NRC Project Manager, NRR – Braidwood Station
Mr. Jeremy Bowen, NRR/JLD/JOMB, NRC
Mr. John D. Hughey, NRR/JLD/JOMB, NRC
Illinois Emergency Management Agency – Division of Nuclear Safety

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REQUEST FOR RELAXATION OF NRC ORDER EA-12-049 REQUIREMENT IV.A.2 FOR BRAIDWOOD STATION, UNIT 1

Relaxation Request:

Pursuant to the procedure specified in Section IV of Nuclear Regulatory Commission (NRC) Order EA-12-049, "Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events" (Reference 1), Exelon Generation Company, LLC (EGC) hereby submits a request for relaxation (for Braidwood Station, Unit 1) from the Order requirements for completion of full implementation currently required to be no later than two (2) refueling cycles after submittal of the overall integrated plan, as required in Condition C.1.a of the Order, or December 31, 2016, whichever comes first.

Order Requirement from Which Relaxation is Requested:

NRC Order EA-12-049, Section IV.A.2 requires completion of full implementation of the Order requirements to be no later than two (2) refueling cycles after submittal of the overall integrated plan, as required by Condition C.1.a or December 31, 2016, whichever comes first. In accordance with the requirements of the Order, EGC submitted the Braidwood Station, Units 1 and 2, Mitigation Strategies Overall Integrated Plan (Reference 2) on February 28, 2013. The Braidwood Station, Units 1 and 2, Mitigation Strategies Overall Integrated Plan milestone schedule identified the completion date for full implementation of NRC Order EA-12-049 as April 2015 for Unit 1, in order to satisfy the requirements of NRC Order EA-12-049.

As described in the Overall Integrated Plan (Reference 2), the Braidwood Station mitigation strategies are based on generic Westinghouse reactor coolant pump (RCP) seal leakage rates. Recent evaluations performed by Pressurized Water Reactor Owners Group (PWROG) PA-SEE-1196 (Reference 5), and associated reports PWROG-14008-P (Reference 6), PWROG-14015-P (Reference 7), and PWROG-14027-P (Reference 8) have further documented plant configurations, developed expected RCP Seal Leakoff flow rates, and revised the time expected to enter Reflux Cooling and Core Uncovery stages. Following meetings between the NRC and Westinghouse, the PWROG is undertaking additional evaluation through a revision to PWROG PA-SEE-1196 to refine leakage projections and validate results. Braidwood Station Unit 1 will be unable to demonstrate compliance to NRC Order EA-12-049 until such time that new generic or site-specific RCP Seal leakage analyses is completed resolving the RCP Seal analytical basis, and RCP #1 Seal pressure challenges are resolved. The current schedule requirement for Braidwood Station, Unit 1 implementation of NRC Order EA-12-049 is prior to restart from the A1R18 refueling outage in April 2015. The requested relaxation would defer full implementation of NRC Order EA-12-049 by one refueling cycle to prior to restart from the A1R19 refueling outage in Fall 2016. The requested relaxation would enable EGC to resolve the RCP seal leakoff flow technical concerns. EGC is proceeding with completion of other design, equipment procurement, and programmatic changes to support the ability to implement the Braidwood Station, Unit 1 mitigation strategies which will be completed and implemented prior to restart from the Braidwood Station, Unit 1 refueling outage in Fall 2016.

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REQUEST FOR RELAXATION OF NRC ORDER EA-12-049 REQUIREMENT IV.A.2 FOR BRAIDWOOD STATION, UNIT 1

Justification for Relaxation Request:

As described in the Braidwood Station Overall Integrated Plan (Reference 2) for compliance with NRC Order EA-12-049, the mitigation strategies depend on generic Westinghouse evaluations contained in WCAP-17601 (Reference 3) that apply to Westinghouse four loop pressurized water reactor designs. Evaluations performed by the PWROG PA-SEE-1196 (Reference 5) and associated reports PWROG-14008-P (Reference 6), PWROG-14015-P (Reference 7), and PWROG-14027-P (Reference 8) have further documented plant configurations, developed expected RCP Seal Leakoff flow rates, and revised the time expected to enter Reflux Cooling and Core Uncovery stages. Following meetings between the NRC and Westinghouse, the PWROG is undertaking additional evaluation through a revision to PWROG PA-SEE-1196 to refine leakage projections and validate results. Additionally, NRC FLEX Audits have raised concerns regarding RCP #1 Seal leakoff line pressure qualifications.

The revised RCP seal leakage rates affect the ability of Braidwood Station, Unit 1 to fully implement the requirements of NRC Order EA-12-049 prior to restart from the A1R18 refueling outage in April 2015. Braidwood Station, Unit 1 will be unable to demonstrate compliance to NRC Order EA-12-049 until such time that new generic or site-specific RCP Seal leakage analyses are completed resolving the RCP Seal analytical basis, and RCP #1 Seal pressure challenges are resolved. The requested relaxation would enable EGC to resolve the RCP seal leakoff flow technical concerns.

EGC is concurrently proceeding with the other design changes, equipment procurement, and programmatic changes to implement the Braidwood Station, Unit 1 mitigation strategies which will be completed and implemented prior to restart from the Braidwood Station, Unit 1 refueling outage in Fall 2016. When completed, other FLEX equipment and modifications required to implement the mitigation strategies required by NRC Order EA-12-049 will be completed and available for use. Full compliance with the requirements of NRC Order EA-12-049 requires NRC endorsement of the Braidwood Station, Unit 1 RCP seal leakage analysis of record and acceptable resolution of RCP Seal #1 concerns. EGC is planning to resolve the RCP seal leakoff technical issue prior to the A1R19 refueling outage in Fall 2016. The proposed date for full implementation of NRC Order EA-12-049 remains within the December 31, 2016 date specified in Order Condition IV.A.2.

Accordingly, EGC requests that the NRC Order EA-12-049, Section IV.A.2, full implementation milestone for Braidwood Station, Unit 1 be relaxed to prior to restart from the A1R19 refueling outage in Fall 2016.

The mitigation strategy requirements imposed by NRC Order EA-12-049 provide additional defense-in-depth measures for mitigating consequences of a beyond-design-basis external event. A sequence of events such as the Fukushima Dai-ichi accident is unlikely to occur in the United States based on current regulatory requirements and existing plant capabilities. Therefore, allowing additional time for development and incorporation of an analytical basis for RCP seal leakage values are not a significant increase in plant risk. Other design changes, equipment procurement, and programmatic changes to implement the Braidwood Station, Unit 1 mitigation strategies will be completed and implemented prior to restart from the Braidwood

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Station, Unit 1 refueling outage in Fall 2016. Therefore, the requested relaxation does not reduce nuclear safety or safe plant operations.

Conclusion:

As described above, compliance with the NRC Order EA-12-049 schedule required for full completion of implementation of mitigation strategies would result in hardship or unusual difficulty without a compensating increase in the level of safety. The PWROG is undertaking additional evaluation through a revision to PWROG PA-SEE-1196 to refine leakage projections and validate results in order to develop an analytical basis that can be endorsed by the NRC. Additionally Braidwood Station is performing site specific evaluations of the RCP #1 Seal leakoff line pressure qualifications to assure component qualifications are within acceptable values, or develop any required modifications. Accordingly, significant hardship and unusual difficulty exists in meeting the full implementation milestone for Braidwood Station, Unit 1. Therefore, in accordance with the provisions of Section IV of NRC Order EA-12-049, EGC requests relaxation of the schedule requirement described in Section IV.A.2 of NRC Order EA-12-049 for Braidwood Station, Unit 1, to allow full implementation of NRC Order EA-12-049 to be completed prior to restart from the Braidwood Station, Unit 1 A1R19 refueling outage in Fall 2016.

References:

1. NRC Order EA-12-049, "Issuance of Order to Modify Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events," dated March 12, 2012
2. Exelon Generation Company, LLC's letter to USNRC, "Overall Integrated Plan in Response to March 12, 2012 Commission Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (Order EA-12-049)," dated February 28, 2013 (RS-13-017)
3. Westinghouse Report WCAP-17601-P, Revision 0, "Reactor Coolant System Response to the Extended Loss of AC Power Event for Westinghouse, Combustion Engineering and Babcock & Wilcox NSSS Designs," dated August 2012
4. Westinghouse Nuclear Safety Advisory Letter NSAL 14-1, "Impact of Reactor Coolant Pump No. 1 Seal Leakoff Piping on Reactor Coolant Pump Seal Leakage During a Loss of All Seal Cooling," dated February 10, 2014
5. PWROG PA-SEE-1196, "No. 1 Seal Flow Rate for Westinghouse Reactor Coolant Pumps following a Loss of All AC Power," April 28, 2014
6. PWROG-14008-P, "No. 1 Seal Flow Rate for Westinghouse Reactor Coolant Following Loss of All AC Power, Task 1: Documentation of Plant Configurations," Revision 0, May 2014

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7. PWROG-14015-P, "No. 1 Seal Flow Rate for Westinghouse Reactor Coolant Pumps Following Loss of All AC Power, Task 2: Determine Seal Flow Rates," Revision 0, June 2014
8. PWROG-14027-P, "No. 1 Seal Flow Rate for Westinghouse Reactor Coolant Pumps Following Loss of All AC Power, Task 3: Evaluations of Revised Seal Flow Rate on Time to Enter Reflux Cooling and Time at which the Core Uncovers," Revision 1, August 2014