Exelon Generation®

Order No. EA-12-049

RS-15-088

March 4, 2015

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

Quad Cities Nuclear Power Station, Unit 1
Renewed Facility Operating License No. DPR-29
NRC Docket No. 50-254

Subject: Request for Schedule 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'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-13-025)
3. NRC Letter to Exelon Generation Company, LLC, Quad Cities Nuclear Power Station Units 1 and 2 - Relaxation of Certain Schedule Requirements for Order EA-12-049, "Issuance of Order to Modify Licenses with Regard to Requirements for Mitigation Strategies for Beyond Design Basis External Events," dated April 15, 2014
4. NRC Order EA-13-109, "Order Modifying Licenses With Regard to Reliable Hardened Containment Vents Capable of Operation Under Severe Accident Conditions," dated June 6, 2013

This letter transmits a request for schedule relaxation of the requirements contained in Nuclear Regulatory Commission ("NRC" or "Commission") Order EA-12-049. On March 12, 2012, the NRC issued an Order (Reference 1) to Exelon Generation Company, LLC (EGC). Reference 1 was immediately effective and directs EGC to develop, implement, and maintain guidance and strategies to maintain or restore core cooling, containment, and spent fuel pool cooling capabilities in the event of a beyond-design-basis external event. Reference 2 provides the Mitigating Strategies Overall Integrated Plan for Quad Cities Nuclear Power Station, Units 1 and 2. In Reference 3, the NRC granted relaxation of certain schedule requirements of Order EA-12-049 related to full containment wetwell venting capability until completion of the Spring 2017 refueling outage for Quad Cities, Unit 1 consistent with the requirements of NRC Order EA-13-109 (Reference 4). Reference 3 identified that the equipment and modifications required to implement the mitigating strategies required by Order EA-12-049 were to be completed and available for use in accordance with the original implementation schedule requirements, except for the primary containment venting strategy. The original implementation schedule requirement

for Quad Cities Nuclear Power Station, Unit 1 is prior to startup from the Q1R23 refuel outage (Spring 2015).

The purpose of this letter is to request additional schedule relaxation from NRC Order EA-12-049 for Quad Cities Nuclear Power Station, Unit 1 to allow completion of installation of the mitigating strategies equipment and modifications needed to implement strategies required by Order EA-12-049 not impacted by the implementation of the containment vent capability described above. Additional time is required to resolve seismic deep well construction issues and delays caused by inclement weather and to complete the associated modifications, or develop and implement revised mitigating strategies for water sources and complete all equipment installation and modifications associated with the FLEX strategies.

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 implementation dates regarding NRC Order EA-12-049 proposed in the attachment will constitute a condition of the NRC Order EA-12-049 for Quad Cities Nuclear Power 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 4th day of March 2015.

Respectfully submitted,

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

Attachment:

Request for Schedule Relaxation of NRC Order EA-12-049 Requirement IV.A.2 for Quad Cities Nuclear Power Station, Unit 1

bcc: Site Vice President – Quad Cities Nuclear Power Station
Vice President Operations Support
Site Engineering Director – Quad Cities Nuclear Power Station
Regulatory Assurance Manager – Quad Cities Nuclear Power Station
Severe Accident Management Director
Site Operations Director – Quad Cities Nuclear Power Station
Corporate Licensing Manager - West
Corporate Licensing Director - West
Exelon Records Management
Vinod K. Aggarwal
Jay Lyter
David P. Schupp
Jeffrey J. Kopacz

ATTACHMENT

REQUEST FOR SCHEDULE RELAXATION OF NRC ORDER EA-12-049 REQUIREMENT IV.A.2 FOR QUAD CITIES NUCLEAR POWER 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 schedule relaxation (for Quad Cities Nuclear Power Station, Unit 1) from the Order requirements for completion of 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 occurs first. In Reference 3, the NRC previously granted relaxation of the Order requirement for full implementation until completion of the Spring 2017 refueling outage until the full containment wetwell venting capability required by Order EA-13-109 (Reference 4) is implemented. As stated in Reference 3, Quad Cities Nuclear Power Station, Unit 1 committed to complete installation of equipment and modifications required to implement the mitigating strategies required by Order EA-12-049 in accordance with the original implementation schedule requirements, except for the primary containment venting strategy.

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 Quad Cities Nuclear Power Station, Units 1 and 2, Mitigation Strategies Overall Integrated Plan (Reference 2) on February 28, 2013. The Quad Cities Nuclear Power Station, Units 1 and 2, Mitigation Strategies Overall Integrated Plan milestone schedule identified the completion dates for full implementation of NRC Order EA-12-049 as March 2015 for Unit 1, in order to satisfy the requirements of NRC Order EA-12-049.

In Reference 3, the NRC granted relaxation of certain schedule requirements of Order EA-12-049 related to full containment wetwell venting capability until completion of the Spring 2017 refueling outage for Quad Cities Nuclear Power Station, Unit 1 consistent with the requirements of NRC Order EA-13-109 (Reference 4). The schedule for implementation of full containment wetwell venting capability is not changed. Reference 3 identified that the equipment and modifications required to implement the mitigating strategies required by Order EA-12-049 were to be completed and available for use in accordance with the original implementation schedule requirements, except for the primary containment venting strategy.

EGC has experienced unanticipated delays in completion of the seismic deep well construction and associated modifications, and extreme weather construction delays, as described below, such that completing all modifications prior to startup from the Q1R23 refueling outage (Spring 2015) is not achievable. The requested relaxation would enable EGC to establish a seismically robust water source and complete installation of the mitigating strategies equipment and

modifications needed to implement strategies required by NRC Order EA-12-049, as committed to in Reference 3.

Justification for Relaxation Request:

EGC has experienced unanticipated delays in completion of the seismic deep well construction and associated modifications, and extreme weather construction delays, as described below, such that completing all modifications prior to startup from the Q1R23 refueling outage (Spring 2015) is not achievable.

- Discovery of seismic deep well construction issues has impacted completion of associated modifications, and may require development and implementation of revised mitigating strategies for seismically robust water sources.
- This is the first seismic deep well that has been drilled onsite, and it is the first large bore well drilled into bedrock since original plant construction (circa 1960).
- The new seismic deep well is expected to draw from the Silurian Dolomite aquifer; however, based on driller observations during the installation process, it is suspected that the geotechnical properties (e.g., fissures, porosity, vugs, weathering) of the limestone may not yield the volume of water initially anticipated. Well capacity will be verified by testing.
- Two nearby existing viable plant supply wells have access to the same aquifer that the seismic deep well is planned to access.
- The seismic deep well construction issues were not identified earlier for the following reasons:
  - Core samples taken in the vicinity of the seismic deep well prior to drilling were inconclusive concerning the needed well capacity flows.
  - Due to the planned location of the seismic deep well near the river and the satisfactory capacity of nearby existing site wells, sufficient seismic deep well capacity was anticipated.
  - During the design process the configuration of the well became more complex and resulted in a later start date for well construction.
  - The initial drilling efforts resulted in the drill bit separating from the drilling shaft, and that well had to be abandoned.
- Inclement weather, including extreme cold, has significantly slowed progress on construction of the seismic deep well due to impacts on personnel and on operation of the well drilling equipment.
- This delay is not expected to impact the seismically robust water supply for Unit 2.

The following actions have been taken to ensure the requested compliance date will be met:

  - A new well drilling contractor with additional experience and more sophisticated equipment has been assigned to complete the drilling work.
  - A review of site hydrology will be performed to ensure the necessary water supply can be achieved.
  - Project activities will be closely monitored and unexpected challenges will be

reviewed by management to ensure a sufficient seismically robust water source will be accessible.

- If the well does not meet the required capacity, then a new strategy for a seismic water source will need to be developed including identifying and procuring required equipment, evaluation of deployment paths, development of the deployment timeline, procedures and training. Should this need arise, development of the new seismic water source strategy will be completed during this relief request period.

Thus, implementation of the mitigation strategies with the exception of the primary containment venting strategy for Quad Cities Nuclear Power Station, Unit 1 in accordance with the original implementation schedule requirements of NRC Order EA-12-049 cannot be completed by the Order requirement date which is 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. Additional time is required to resolve seismic deep well construction issues and delays caused by inclement weather and to complete the associated modifications, or develop and implement revised mitigating strategies using seismically robust water sources and complete all equipment installation and modifications required for implementation of the mitigation strategies in accordance with NRC Order EA-12-049, except for the primary containment venting strategy. The requested relaxation duration has been determined to be adequate to complete resolution of these unanticipated delays, and support implementation of the required mitigation equipment and strategies.

Accordingly, EGC requests that the NRC Order EA-12-049, Section IV.A.2, implementation requirement date for Quad Cities Nuclear Power Station, Unit 1 be relaxed to allow completion no later than December 11, 2015, with the exception of the primary containment venting strategy. The schedule for implementation of full containment wetwell venting capability is not changed.

The mitigating equipment and strategies being implemented in accordance with NRC Order EA-12-049 provide defense-in-depth measures for mitigating consequences of a beyond-design-basis external event. A significant portion of the Quad Cities Nuclear Power Station, Unit 1 mitigating strategies equipment and procedures will be implemented by the original schedule requirement of NRC Order EA-12-049. As described in UFSAR Section 9.2.5.2, existing equipment and procedures could be used to access river water following a seismic event, if needed. 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 completion of all equipment installation and modifications required for implementation of the mitigation strategies, except for the primary containment venting strategy, is not a significant increase in plant risk. These mitigating strategies provide enhanced plant capability to mitigate beyond-design-basis external events. Therefore, the requested relaxation does not reduce nuclear safety or safe plant operations.

ATTACHMENT

REQUEST FOR SCHEDULE RELAXATION OF NRC ORDER EA-12-049 REQUIREMENT IV.A.2
FOR QUAD CITIES NUCLEAR POWER STATION, UNIT 1

Conclusion:

As described above, compliance with the NRC Order EA-12-049 schedule required for completion of implementation of mitigation strategies and equipment would result in hardship or unusual difficulty without a compensating increase in the level of safety. Additional time following startup from the Quad Cities Nuclear Power Station, Unit 1, Q1R23 (Spring 2015) refueling outage is required in order to resolve the construction and modification issues identified above and complete all equipment installation and modifications required for implementation of the mitigation strategies, with the exception of the primary containment venting strategy. Accordingly, significant hardship and unusual difficulty exists in completing installation of the equipment and modifications required to implement the mitigating strategies required by Order EA-12-049 in accordance with the original implementation schedule requirements. Therefore, in accordance with the provisions of Section IV of the Order, EGC requests relaxation of the requirement described in Section IV.A.2.

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-13-025)
3. NRC Letter to Exelon Generation Company, LLC, Quad Cities Nuclear Power Station Units 1 and 2 - Relaxation of Certain Schedule Requirements for Order EA-12-049, "Issuance of Order to Modify Licenses with Regard to Requirements for Mitigation Strategies for Beyond Design Basis External Events," dated April 15, 2014
4. NRC Order EA-13-109, "Order Modifying Licenses With Regard to Reliable Hardened Containment Vents Capable of Operation Under Severe Accident Conditions," dated June 6, 2013