



RS-16-210

Order No. EA-13-109  
Order No. EA-12-049

November 16, 2016

U.S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
11555 Rockville Pike  
Rockville, MD 20852

Quad Cities Nuclear Power Station, Units 1 and 2  
Renewed Facility Operating License Nos. DPR-29 and DPR-30  
NRC Docket Nos. 50-254 and 50-265

Subject: Request for Extension to Comply with NRC Order EA-13-109, "Order Modifying Licenses with Regard to Reliable Hardened Containment Vents Capable of Operation Under Severe Accident Conditions" and 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 Number EA-13-109, "Issuance of Order to Modify Licenses with Regard to Reliable Hardened Containment Vents Capable of Operation Under Severe Accident Conditions," dated June 6, 2013
2. NRC Order Number 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
3. Exelon Generation Company, LLC Letter to USNRC, Request for Relaxation from NRC Order EA-12-049, "Order Modifying Licenses With Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events," dated February 27, 2014
4. USNRC 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
5. Exelon Generation Company, LLC Letter to USNRC, Certification of Permanent Cessation of Power Operations at Quad Cities Nuclear Power Station, Units 1 and 2, dated June 20, 2016

On June 6, 2013, the Nuclear Regulatory Commission ("NRC" or "Commission") issued an Order (Reference 1) to Exelon Generation Company, LLC (EGC). Reference 1 was immediately effective and directs EGC to require their BWRs with Mark I and Mark II containments to take certain actions to ensure that these facilities have a hardened containment vent system (HCVS) to remove decay heat from the containment, and maintain control of containment pressure within acceptable limits following events that result in loss of active containment heat removal capability while maintaining the capability to operate under severe accident (SA) conditions resulting from

an Extended Loss of AC Power (ELAP). Specific requirements are outlined in Attachment 2 of Reference 1. The Order includes two separate implementation phases. Phase 1 includes modifications to wetwell venting systems, while Phase 2 includes modifications to drywell venting systems or implementation of a reliable containment strategy that meets regulatory approval.

On March 12, 2012, the NRC issued an Order (Reference 2) to EGC. Reference 2 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. In Reference 3, EGC requested schedule relaxation of the requirements of NRC Order EA-12-049 for Quad Cities Nuclear Power Station, Units 1 and 2 as a result of the revised NRC Order EA-13-109 containment venting capability schedule and implementation timeline requirements, since the mitigation strategies implemented in accordance with NRC Order EA-12-049 are dependent upon implementation of the reliable hardened containment venting capability established in accordance with Phase 1 of NRC Order EA-13-109. In Reference 4, the NRC granted the requested schedule relaxation from the requirements of NRC Order EA-12-049 until completion of the Spring 2017 refueling outage for Quad Cities, Unit 1, and the completion of the Spring 2018 refueling outage for Quad Cities, Unit 2 to allow sufficient time to implement a severe accident capable hardened containment wetwell vent at each respective Unit. Thus, final full compliance with NRC Order EA-12-049 is tied to the final compliance date for Phase 1 of NRC Order EA-13-109 for Quad Cities Nuclear Power Station, Units 1 and 2. Quad Cities Nuclear Power Station, Units 1 and 2 have since completed implementation of the mitigation strategies capabilities in accordance with NRC Order EA-12-049 that are not impacted by the delay in the implementation of the containment vent capability.

On June 20, 2016, EGC notified the NRC that it has decided to permanently cease power operations at the Quad Cities Nuclear Power Station, Units 1 and 2 by June 1, 2018 (Reference 5).

In accordance with Section IV of NRC Order EA-13-109, EGC is hereby requesting that the Director, Office of Nuclear Reactor Regulation, grant an extension to comply with the requirements in Section IV of NRC Order EA-13-109 concerning implementation of the Phase 1 (wetwell vent) and Phase 2 (drywell vent) at Quad Cities Nuclear Power Station, Units 1 and 2, and NRC Order EA-12-049 at Quad Cities Nuclear Power Station, Unit 1, until June 30, 2018. Additionally, EGC will submit a request for relief from NRC Order EA-13-109 no later than June 30, 2018 based upon the permanent shutdown condition of the plant at that time. Applicable portions of the mitigating strategies implemented in accordance with NRC Order EA-12-049, except for containment venting capability, will continue to apply for some period after permanent plant shutdown. The enclosure to this letter provides the basis and justification supporting the request for extension to comply with the requirements of NRC Orders EA-13-109 and EA-12-049 for Quad Cities Nuclear Power Station, Units 1 and 2. The requested schedule extension to June 30, 2018 does not extend compliance beyond the latest compliance dates specified in NRC Order EA-13-109 for Phase 1 (June 30, 2018) or Phase 2 (June 30, 2019).

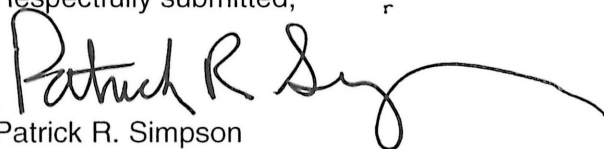
This request for extension to comply with NRC Order EA-12-049 for Quad Cities Nuclear Power Station, Units 1 and 2 is in addition to the previous schedule relaxation granted by the NRC in Reference 4, and provides an additional schedule relaxation to June 30, 2018 for Quad Cities Nuclear Power Station, Unit 1.

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This letter contains no new regulatory commitments. If you have any questions regarding this submittal, 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 16<sup>th</sup> day of November 2016.

Respectfully submitted,

A handwritten signature in black ink that reads "Patrick R. Simpson". The signature is fluid and cursive, with a long horizontal flourish extending to the right.

Patrick R. Simpson  
Manager - Licensing  
Exelon Generation Company, LLC

Enclosure: Request for Extension to Comply with NRC Order EA-13-109, Section IV Requirements Regarding Implementation of Phase 1 and Phase 2 Severe Accident Capable Vents and NRC Order EA-12-049, Section IV Requirements Regarding Mitigation Strategies for Beyond-Design-Basis External Events for Quad Cities Nuclear Power Station, Units 1 and 2

cc: Director, Office of Nuclear Reactor Regulation  
Director, Japan Lessons-Learned Division, NRR  
NRC Regional Administrator - Region III  
NRC Senior Resident Inspector - Quad Cities Nuclear Power Station  
NRC Project Manager, NRR - Quad Cities Nuclear Power Station  
Mr. Brian E. Lee, NRR/JLD/JCBB, NRC  
Mr. John P. Boska, NRR/JLD/JOMB, NRC  
Illinois Emergency Management Agency - Division of Nuclear Safety

**Enclosure**

**Quad Cities Nuclear Power Station, Units 1 and 2**

**Request for Extension to Comply with NRC Order EA-13-109, Section IV  
Requirements Regarding Implementation of Phase 1 and Phase 2  
Severe Accident Capable Vents and  
NRC Order EA-12-049, Section IV Requirements Regarding Mitigation Strategies for  
Beyond-Design-Basis External Events**

(9 pages)



## ENCLOSURE

### **Request for Extension to Comply with NRC Order EA-13-109, Section IV Requirements Regarding Implementation of Phase 1 and Phase 2 Severe Accident Capable Vents, and NRC Order EA-12-049, Section IV Requirements Regarding Mitigation Strategies for Beyond-Design-Basis External Events for Quad Cities Nuclear Power Station, Units 1 and 2**

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#### **I. Request for Extension**

Pursuant to Nuclear Regulatory Commission (NRC) Order EA-13-109, "Order Modifying Licenses with Regard to Reliable Hardened Containment Vents Capable of Operation Under Severe Accident Conditions" (Reference 1), and NRC Order EA-12-049, "Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events" (Reference 2), Exelon Generation Company, LLC (EGC) hereby submits a request for extension to comply with the requirements in Section IV of NRC Order EA-13-109 concerning implementation of Phase 1 (wetwell vent) and Phase 2 (drywell vent) at Quad Cities Nuclear Power Station, Units 1 and 2, and Section IV of NRC Order EA-12-049 concerning implementation of FLEX strategies including full hardened containment vent capability at Quad Cities Nuclear Power Station, Unit 1, until June 30, 2018. Additionally, EGC will request relief from NRC Order EA-13-109 for Quad Cities Nuclear Power Station, Units 1 and 2 no later than June 30, 2018 based upon the permanent shutdown condition of the plant at that time. Applicable portions of the mitigating strategies implemented in accordance with NRC Order EA-12-049, except for containment venting capability, will continue to apply for some period after permanent plant shutdown.

For Quad Cities Nuclear Power Station, Unit 1 the requested extension to comply with NRC Order EA-13-109 includes relief from the Order requirement for further 6-month updates on Order implementation as described below.

For Quad Cities Nuclear Power Station, Unit 2, the requested extension to comply with NRC Order EA-13-109 only applies to the Order requirement for further 6-month updates on Order implementation as described below.

For Quad Cities Nuclear Power Station, Units 1 and 2, Order EA-12-049 6-month updates will continue to be provided in accordance with Order EA-12-049, Section IV, since Order compliance is required to be maintained for some period after permanent plant shutdown.

#### **II. Order Requirement from Which Extension is Requested**

NRC Order EA-13-109, Section IV.B requires licensees to complete implementation of Phase 1 (severe accident capable wetwell venting system) no later than startup from the second refueling outage that begins after June 30, 2014, or June 30, 2018, whichever occurs first. NRC Order EA-13-109, Section IV.B also requires licensees to complete implementation of Phase 2 (severe accident capable drywell venting system) no later than startup from the first refueling outage that begins after June 30, 2017, or June 30, 2019, whichever occurs first.

NRC Order EA-13-109, Sections IV.D.1 and IV.D.2, require the submittal of an overall integrated plan for Phases 1 and 2, respectively; and Section IV.D.3 requires status reports at six-month intervals following submittal of the integrated plans for Phases 1 and 2. The Phase 1

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### **Request for Extension to Comply with NRC Order EA-13-109, Section IV Requirements Regarding Implementation of Phase 1 and Phase 2 Severe Accident Capable Vents, and NRC Order EA-12-049, Section IV Requirements Regarding Mitigation Strategies for Beyond-Design-Basis External Events for Quad Cities Nuclear Power Station, Units 1 and 2**

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overall integrated plan was submitted to the NRC in Reference 3. The Phase 1 (Updated) and Phase 2 integrated plans were submitted to the NRC in Reference 4. Six-month update reports were submitted in References 5, 6, and 7.

Based on the timelines specified in NRC Order EA-13-109, and the current required implementation dates for NRC Order EA-12-049 as approved by the NRC in Reference 9, EGC is required to implement Order EA-13-109 Phase 1 and Phase 2 requirements, and Order EA-12-049 FLEX requirements as follows:

#### Quad Cities Nuclear Power Station, Unit 1

- Order EA-13-109 Phase 1 compliance prior to startup from the Q1R24 refuel outage (Spring 2017)
- Order EA-13-109 Phase 2 compliance prior to startup from the Q1R25 refuel outage (Spring 2019)
- Order EA-12-049 FLEX compliance prior to startup from the Q1R24 refuel outage (Spring 2017)

#### Quad Cities Nuclear Power Station, Unit 2

- Order EA-13-109 Phase 1 and Phase 2 compliance prior to startup from the Q2R24 refuel outage (Spring 2018)
- Order EA-12-049 FLEX compliance prior to startup from the Q2R24 refuel outage (Spring 2018)

On June 20, 2016, EGC notified the NRC that it has decided to permanently cease power operations at the Quad Cities Nuclear Power Station, Units 1 and 2 by June 1, 2018 (Reference 8).

For Quad Cities Nuclear Power Station Unit 1, relaxation is requested to extend the compliance dates for both Order EA-13-109 Phase 1, and Order EA-12-049, to June 30, 2018. The current implementation date for Order EA-13-109 Phase 2 is not affected. Relaxation is also requested from the Order requirement for further 6-month updates for Phase 1 and Phase 2 implementation of Order EA-13-109.

For Quad Cities Nuclear Power Station Unit 2, relaxation is requested from the Order requirement for further 6-month updates for Phase 1 and Phase 2 implementation of Order EA-13-109. The current implementation dates for Orders EA-13-109 and EA-12-049 are not affected.

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### **Request for Extension to Comply with NRC Order EA-13-109, Section IV Requirements Regarding Implementation of Phase 1 and Phase 2 Severe Accident Capable Vents, and NRC Order EA-12-049, Section IV Requirements Regarding Mitigation Strategies for Beyond-Design-Basis External Events for Quad Cities Nuclear Power Station, Units 1 and 2**

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#### **Quad Cities Nuclear Power Station, Unit 1**

EGC has evaluated the complex modifications required to meet the Phase 1 venting capability requirements specified by Order EA-13-109 for Quad Cities Nuclear Power Station, Unit 1, and concluded that an extension to compliance with these Order requirements to June 30, 2018 is reasonable considering the limited remaining plant operating life (i.e., approximately 1 year) at the time the Phase 1 modifications are required to be implemented at Quad Cities Nuclear Power Station, Unit 1. The requested extension includes relaxation from the Order EA-13-109 requirement to provide further 6-month updates for Phase 1 and Phase 2 implementation. An extension to compliance with the Order EA-13-109 requirement to provide further 6-month updates for Phase 1 and Phase 2 implementation is reasonable considering that Quad Cities Nuclear Power Station, Unit 1 plans to permanently shut down prior to the requested extension date for Phase 1 and prior to the Phase 2 implementation date required by NRC Order EA-13-109.

In Reference 9, the NRC previously approved relaxation of the requirement for full implementation of NRC Order EA-12-049 until the completion of the Spring 2017 refueling outage for Quad Cities Nuclear Power Station, Unit 1 to allow sufficient time to implement a severe accident capable hardened containment wetwell vent. Accordingly, the requested extension for compliance with Order EA-13-109 Phase 1 requirements to June 30, 2018 for Unit 1 necessitates an extension to the final FLEX Order EA-12-049 compliance date for Unit 1 to June 30, 2018. The requested extension for final FLEX Order EA-12-049 compliance is consistent with the above justification supporting the requested extension to Order EA-13-109 Phase 1 compliance and the FLEX Order EA-12-049 compliance extension previously granted by the NRC in Reference 9.

#### **Quad Cities Nuclear Power Station, Unit 2**

The requested Unit 2 extension includes relaxation from the Order EA-13-109 requirement to provide further 6-month updates for Phase 1 and Phase 2 implementation. Relaxation from the Order EA-13-109 requirement to provide further 6-month updates regarding Order implementation is reasonable considering Quad Cities Nuclear Power Station, Unit 2 plans to permanently shut down prior to the current implementation dates required by NRC Order EA-13-109. Based on the planned permanent shut down by June 1, 2018, plant startup from the refuel outage associated with the current compliance dates required by NRC Order EA-13-109 will not occur.

#### **Summary**

The requested schedule extension will provide relief from completing further Phase 1 and Phase 2 implementation activities related to NRC Order EA-13-109, and relief from providing associated 6-month update status report submittals related to NRC Order EA-13-109, for Quad Cities Nuclear Power Station, Units 1 and 2. The requested schedule extension will also provide relief from completing the Phase 1 wetwell vent modifications supporting full implementation of NRC Order EA-12-049 for Quad Cities Nuclear Power Station, Unit 1. EGC

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### **Request for Extension to Comply with NRC Order EA-13-109, Section IV Requirements Regarding Implementation of Phase 1 and Phase 2 Severe Accident Capable Vents, and NRC Order EA-12-049, Section IV Requirements Regarding Mitigation Strategies for Beyond-Design-Basis External Events for Quad Cities Nuclear Power Station, Units 1 and 2**

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will request relief from NRC Order EA-13-109 Phase 1 and Phase 2 requirements for Quad Cities Nuclear Power Station, Units 1 and 2 no later than June 30, 2018 based upon the permanent shutdown condition of the plant at that time. Applicable portions of the mitigating strategies implemented in accordance with NRC Order EA-12-049, except for containment venting capability, will continue to apply for some period after permanent plant shutdown.

### **III. Justification for Extension Request**

#### **Quad Cities Nuclear Power Station, Unit 1**

In accordance with the requirements of Section IV of NRC Order EA-13-109, EGC is required to implement Phase 1 (severe accident capable wetwell venting system) at Quad Cities Nuclear Power Station, Unit 1 by startup from the Q1R24 Refueling Outage (Spring 2017), and Phase 2 (severe accident capable drywell venting system) by startup from the Q1R25 Refueling Outage (Spring 2019). These requirements are intended to provide a reliable Hardened Containment Vent System (HCVS) to prevent or limit core damage upon loss of heat removal capability during beyond-design-basis severe accident conditions until other means of heat removal are available, such as the Residual Heat Removal and Shutdown Cooling systems.

#### **HCVS Order Phase 1**

The existing plant safety features at Quad Cities Nuclear Power Station, Unit 1, along with implementation of the existing FLEX strategies in accordance with NRC Order EA-12-049 and the installed capability of the existing HCVS, will provide additional defense-in-depth measures and enhanced plant capability to mitigate the consequences of a beyond-design-basis external event and to prevent severe accident conditions for the limited duration of the requested schedule relaxation to June 30, 2018.

In Reference 9, the NRC approved relaxation of the requirement for full implementation of NRC Order EA-12-049 until the completion of the Spring 2017 refueling outage for Quad Cities Nuclear Power Station, Unit 1 to allow sufficient time to implement a severe accident capable hardened containment wetwell vent. In accordance with Reference 9, Quad Cities Nuclear Power Station, Unit 1, has completed installation of the equipment and modifications required to implement the mitigating strategies required by Order EA-12-049, except for the primary containment venting strategy. FLEX equipment, robust storage facilities, and procedures have been implemented, and required training and validation tasks have been completed for the current mitigating strategies in order to support final compliance with NRC Order EA-12-049. The existing hardened vent system will continue to provide containment venting capability using emergency operating procedures to support the installed FLEX mitigating strategies during the duration of the requested schedule extension relief to June 30, 2018.

The existing HCVS is designed to meet NRC Generic Letter (GL) 89-16 requirements. Operation of the vent system without AC power is included in plant procedure QCOP 1600-13,

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Post-Accident Venting of the Primary Containment, Attachments C and D, as a result of B.5.b evaluations. Operation without AC power (ELAP conditions) is accomplished with two Equipment Operators using portable nitrogen bottles and a specially-designed rig to locally operate the required flow path AOVs. The flow path is from Suppression Pool through 18" line 1(2)1603 past seismically designed isolation valves 1(2)-1601-60, and 1(2)-1601-24, then through the non-seismic flow path consisting of a reducing line sized to 8", and then cycling flow through valve 1(2)-1699-6 to the Main Chimney. The seismic capability of the existing HCVS for piping and valves from the suppression pool is through seismically designed isolation valves 1(2)-1601-60, and 1(2)-1601-24, then via the non-seismic discharge to the Main Chimney. The first two valves are located in the Reactor Building, and for the HCVS Order EA-13-109 beyond-design-basis external event (BDBEE) scenario, will be opened within the first hour post-event to avoid radiological exposure to the Equipment Operators. Valve 1(2)-1699-6 is remotely operated from the MCR, is located in the turbine building, and remains accessible for local operation with portable nitrogen bottles. Based on the above, the existing HCVS provides enhanced containment venting capability during a potential ELAP condition.

An extension to compliance with the Order EA-13-109 requirement to provide further 6-month updates for Phase 1 implementation is reasonable considering that Quad Cities Nuclear Power Station, Unit 1 plans to permanently shut down prior to the requested extension date for Phase 1 required by NRC Order EA-13-109. EGC will request relief from NRC Order EA-13-109 Phase 1 requirements for Quad Cities Nuclear Power Station, Unit 1 no later than June 30, 2018 based upon the permanent shutdown condition of the plant at that time.

#### FLEX Order

Based on the current implementation of the Unit 1 installed FLEX strategies and equipment along with the existing HCVS containment venting capability described above, a significant portion of the desired increase in capability to respond to a BDBEE is realized within the timeframe specified in NRC Order EA-12-049. The requested extension for final FLEX compliance (Order EA-12-049) is consistent with the above justification supporting the requested extension to Order EA-13-109 Phase 1 compliance, and the NRC Order EA-12-049 compliance extension previously granted by the NRC in Reference 9. Applicable portions of the mitigating strategies implemented in accordance with NRC Order EA-12-049, except for containment venting capability, will continue to apply for some period after permanent plant shutdown.

#### HCVS Order Phase 2

Quad Cities Nuclear Power Station, Unit 1 plans to permanently shut down no later than June 1, 2018, prior to the Phase 2 implementation date required by NRC Order EA-13-109. Therefore, Quad Cities Nuclear Power Station, Unit 1 startup from the refuel outage associated with the Phase 2 compliance date will not occur. Further engineering, design, and construction work to support compliance with NRC Order EA-13-109 has been discontinued. An extension to compliance with the Order EA-13-109 requirement to provide further 6-month updates for Phase 2 implementation is reasonable considering that Quad Cities Nuclear Power Station,



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### **Request for Extension to Comply with NRC Order EA-13-109, Section IV Requirements Regarding Implementation of Phase 1 and Phase 2 Severe Accident Capable Vents, and NRC Order EA-12-049, Section IV Requirements Regarding Mitigation Strategies for Beyond-Design-Basis External Events for Quad Cities Nuclear Power Station, Units 1 and 2**

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Unit 1 will be permanently shut down prior to the implementation date required by NRC Order EA-13-109. EGC will request relief from NRC Order EA-13-109 Phase 2 requirements for Quad Cities Nuclear Power Station, Unit 1 no later than June 30, 2018 based upon the permanent shutdown condition of the plant at that time.

#### **Quad Cities Nuclear Power Station, Unit 2**

In accordance with the requirements of Section IV of NRC Order EA-13-109, EGC is required to implement Phase 1 (severe accident capable wetwell venting system) and Phase 2 (severe accident capable drywell venting system) at Quad Cities Nuclear Power Station, Unit 2 by startup from the Q2R24 Refueling Outage (Spring 2018). These requirements are intended to provide a reliable Hardened Containment Vent System (HCVS) to prevent or limit core damage upon loss of heat removal capability during beyond-design-basis severe accident conditions until other means of heat removal are available, such as the Residual Heat Removal and Shutdown Cooling systems. In accordance with Reference 9, EGC is required to implement NRC Order EA-12-049 by startup from the Q2R24 Refueling Outage (Spring 2018).

#### **HCVS Order Phase 1 and Phase 2**

Quad Cities Nuclear Power Station, Unit 2 plans to permanently shut down no later than June 1, 2018, prior to the Phase 1 and Phase 2 implementation date required by NRC Order EA-13-109. Therefore, Quad Cities Nuclear Power Station, Unit 2 startup from the refuel outage associated with the HCVS Order Phase 1 and Phase 2 compliance date will not occur. Further engineering, design, and construction work to support compliance with NRC Order EA-13-109 has been discontinued. The requested schedule relief regarding the Order EA-13-109 requirement to provide further 6-month updates on the implementation of the HCVS Phase 1 and Phase 2 for Quad Cities Nuclear Power Station, Unit 2 is justified since Quad Cities Nuclear Power Station, Unit 2 will be permanently shut down prior to the implementation date required by NRC Order EA-13-109. EGC will request relief from NRC Order EA-13-109 Phase 1 and Phase 2 requirements for Quad Cities Nuclear Power Station, Unit 2 no later than June 30, 2018 based upon the permanent shutdown condition of the plant at that time. Applicable portions of the mitigating strategies implemented in accordance with NRC Order EA-12-049, except for containment venting capability, will continue to apply for some period after permanent plant shutdown.

Relaxation from the Order EA-13-109 requirement to provide further 6-month updates regarding Order implementation is reasonable considering Quad Cities Nuclear Power Station, Unit 2 plans to permanently shut down prior to the current implementation date required by NRC Order EA-13-109.

#### **Summary**

EGC is preparing plans to decommission the Quad Cities Nuclear Power Station, Units 1 and 2 site while concurrently safely completing the current operating cycles for Units 1 and 2, and preparing for the next Unit 1 refuel outage (Spring 2017) to support a shortened 12-month final



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operating cycle for Unit 1. The requested schedule extension to June 30, 2018 does not extend compliance beyond the latest compliance dates specified in the Order EA-13-109 for Phase 1 (June 30, 2018) or Phase 2 (June 30, 2019). Resources which otherwise would have been assigned to future refuel outage preparation and continued plant operation are now assigned decommissioning preparation activities. The requested schedule relief regarding compliance with the Phase 1 and Phase 2 requirements of NRC Order EA-13-109 for Quad Cities Nuclear Power Station, Units 1 and 2, and NRC Order EA-12-049 for Quad Cities Nuclear Power Station, Unit 1, and discontinuance of engineering, design, and procurement efforts supporting final integrated plan implementation would allow EGC to allocate its resources to activities with a nexus to public health and safety while maintaining the regulatory objective of requiring plants licensed to operate to implement Orders EA-13-109 and EA-12-049 in a timely manner.

The current implementation of the Unit 1 FLEX strategies and equipment, along with the existing HCVS containment venting capability, ensures that a portion of the desired increase in capability to respond to a BDBEE is realized within the timeframe specified in Order EA-12-049. The requested extension for Unit 1 final FLEX Order EA-12-049 compliance is consistent with the above justification supporting the requested extension to Order EA-13-109 Phase 1 compliance, and the prior FLEX Order EA-12-049 compliance extension granted in Reference 9 for Quad Cities Nuclear Power Station, Units 1 and 2.

#### **IV. Conclusion**

The existing plant safety features at Quad Cities Nuclear Power Station, Units 1 and 2, along with implementation of FLEX strategies in accordance with NRC Order EA-12-049 with the exception of the Phase 1 vent capability, and the installed capability of the exiting HCVS, will provide additional defense-in-depth measures and enhanced plant capability to mitigate the consequences of a beyond-design-basis external event and to prevent severe accident conditions. Therefore, the need for severe accident containment venting capability at Quad Cities Nuclear Power Station, Units 1 and 2 is extremely unlikely during the remaining duration of plant operation. Compliance with NRC Orders EA-13-109 and EA-12-049 for Quad Cities Nuclear Power Station, Units 1 and 2, is not necessary to achieve the underlying purpose of the Order based on the special conditions at Quad Cities Nuclear Power Station, Units 1 and 2 and the planned permanent cessation of plant operations no later than June 1, 2018 (Reference 8). A sequence of events such as those that occurred at the Fukushima Dai-ichi accident is unlikely to occur in the United States based on current regulatory requirements and existing plant capabilities, and the limited remaining duration of plant operating life at Quad Cities Nuclear Power Station, Units 1 and 2. Therefore, the requested extension to the compliance requirements of NRC Orders EA-13-109 and EA-12-049 for Quad Cities Nuclear Power Station, Units 1 and 2, does not pose a significant increase in plant risk and does not reduce nuclear safety or safe plant operations.

Accordingly, based on the special circumstances at Quad Cities Nuclear Power Station, Units 1 and 2, EGC requests an extension to comply with the requirements in Section IV of NRC Order

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EA-13-109 concerning implementation of Phase 1 (wetwell vent) and Phase 2 (drywell vent) at Quad Cities Nuclear Power Station, Units 1 and 2, and with the requirements in Section IV of NRC Order EA-12-049 for Quad Cities Nuclear Power Station, Unit 1, until June 30, 2018. Additionally, EGC will request relief from NRC Order EA-13-109 no later than June 30, 2018 based upon the permanent shutdown condition of the plant at that time. EGC believes that the requested extension milestone of June 30, 2018 will not be reached because Quad Cities Nuclear Power Station, Units 1 and 2 will cease operations and submit the certifications required by 10CFR50.82(a)(1). The requested extension does, however, preserve the final implementation requirement in the interim, prior to submission of the required certifications.

#### **V. References**

1. NRC Order Number EA-13-109, "Issuance of Order to Modify Licenses with Regard to Reliable Hardened Containment Vents Capable of Operation Under Severe Accident Conditions," dated June 6, 2013
2. NRC Order Number 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
3. Exelon Generation Company, LLC Phase 1 Overall Integrated Plan in Response to June 6, 2013 Commission Order Modifying Licenses with Regard to Reliable Hardened Containment Vents Capable of Operation Under Severe Accident Conditions (Order Number EA-13-109), dated June 30, 2014 (RS-14-063)
4. Exelon Generation Company, LLC Phase 1 (Updated) and Phase 2 Overall Integrated Plan in Response to June 6, 2013 Commission Order Modifying Licenses with Regard to Reliable Hardened Containment Vents Capable of Operation Under Severe Accident Conditions (Order Number EA-13-109), dated December 16, 2015 (RS-15-304)
5. Exelon Generation Company, LLC First Six-Month Status Report Phase 1 Overall Integrated Plan in Response to June 6, 2013 Commission Order Modifying Licenses with Regard to Reliable Hardened Containment Vents Capable of Operation Under Severe Accident Conditions (Order Number EA-13-109), dated December 17, 2014 (RS-14-306)
6. Exelon Generation Company, LLC Second Six-Month Status Report Phase 1 Overall Integrated Plan in Response to June 6, 2013 Commission Order Modifying Licenses with Regard to Reliable Hardened Containment Vents Capable of Operation Under Severe Accident Conditions (Order Number EA-13-109), dated June 30, 2015 30 (RS-15-152)

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**Request for Extension to Comply with NRC Order EA-13-109, Section IV Requirements Regarding Implementation of Phase 1 and Phase 2 Severe Accident Capable Vents, and NRC Order EA-12-049, Section IV Requirements Regarding Mitigation Strategies for Beyond-Design-Basis External Events for Quad Cities Nuclear Power Station, Units 1 and 2**

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7. Exelon Generation Company, LLC Fourth Six-Month Status Report for Phases 1 and 2 Overall Integrated Plan in Response to June 6, 2013 Commission Order Modifying Licenses with Regard to Reliable Hardened Containment Vents Capable of Operation Under Severe Accident Conditions (Order Number EA-13-109), dated June 30, 2016 (RS-16-110)
8. Exelon Generation Company, LLC Letter to USNRC, Certification of Permanent Cessation of Power Operations at Quad Cities Nuclear Power Station, Units 1 and 2, dated June 20, 2016
9. 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