



Order No. EA-12-049

RS-14-015

February 28, 2014

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

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: Second Six-Month Status Report in Response to March 12, 2012 Commission Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (Order Number EA-12-049)

References:

1. 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
2. NRC Interim Staff Guidance JLD-ISG-2012-01, "Compliance with Order EA-12-049, Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events," Revision 0, dated August 29, 2012
3. NEI 12-06, "Diverse and Flexible Coping Strategies (FLEX) Implementation Guide," Revision 0, dated August 2012
4. Exelon Generation Company, LLC's Initial Status Report in Response to March 12, 2012 Commission Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (Order Number EA-12-049), dated October 25, 2012
5. Exelon Generation Company, LLC 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 Number EA-12-049), dated February 28, 2013 (RS-13-025)
6. Exelon Generation Company, LLC First Six-Month Status Report in Response to March 12, 2012 Commission Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (Order Number EA-12-049), dated August 28, 2013 (RS-13-129)
7. NRC letter to Exelon Generation Company, LLC, Quad Cities Nuclear Power Station, Units 1 and 2 – Interim Staff Evaluation Relating to Overall Integrated Plan in Response to Order EA-12-049 (Mitigation Strategies) (TAC Nos. MF1048 and MF1049), dated November 22, 2013

On March 12, 2012, 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 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. Specific requirements are outlined in Attachment 2 of Reference 1.

Reference 1 required submission of an initial status report 60 days following issuance of the final interim staff guidance (Reference 2) and an overall integrated plan pursuant to Section IV, Condition C. Reference 2 endorses industry guidance document NEI 12-06, Revision 0 (Reference 3) with clarifications and exceptions identified in Reference 2. Reference 4 provided the EGC initial status report regarding mitigation strategies. Reference 5 provided the Quad Cities Nuclear Power Station, Units 1 and 2 overall integrated plan.

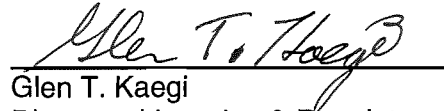
Reference 1 requires submission of a status report at six-month intervals following submittal of the overall integrated plan. Reference 3 provides direction regarding the content of the status reports. Reference 6 provides the first six-month status report pursuant to Section IV, Condition C.2, of Reference 1 for Quad Cities Station. The purpose of this letter is to provide the second six-month status report pursuant to Section IV, Condition C.2, of Reference 1, that delineates progress made in implementing the requirements of Reference 1. The enclosed report provides an update of milestone accomplishments since the last status report, including any changes to the compliance method, schedule, or need for relief and the basis, if any. The enclosed report also addresses the NRC Interim Staff Evaluation Open and Confirmatory Items contained in Reference 7.

As described in Reference 5, full implementation of NRC Order EA-12-049 required mitigation strategies is dependent upon implementation of reliable hardened containment venting capability established in accordance with NRC Order EA-12-050. NRC Order EA-13-109 issued by the NRC on June 6, 2013, rescinded the requirements of Order EA-12-050 and established revised schedule timelines and implementation dates for reliable hardened containment vents capable of operation under severe accident conditions. The revised schedule and implementation timeline contained in Order EA-13-109 delays the ability to achieve full implementation of the mitigation strategy requirements of Order EA-12-049. This need for relaxation from the implementation requirements of Order EA-12-049 is described in Section 5 of the enclosed update report. The request for relaxation of the full implementation schedule requirements of Order EA-12-049 will be submitted separately.

This letter contains no new regulatory commitments. If you have any questions regarding this report, 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 28th day of February 2014.

Respectfully submitted,



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

Enclosure:

1. Quad Cities Nuclear Power Station, Units 1 and 2 Second Six-Month Status Report for the Implementation of Order EA-12-049, Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events

cc: Director, Office of Nuclear Reactor Regulation
NRC Regional Administrator - Region III
NRC Senior Resident Inspector – Quad Cities Nuclear Power Station, Units 1 and 2
NRC Project Manager, NRR – Quad Cities Nuclear Power Station, Units 1 and 2
Ms. Jessica A. Kratchman, NRR/JLD/PMB, NRC
Mr. Jack R. Davis, NRR/DPR/MSD, NRC
Mr. Eric E. Bowman, NRR/DPR/MSD, NRC
Mr. Jeremy S. Bowen, NRR/DPR/MSD/MSPB, NRC
Mr. Robert L. Dennig, NRR/DSS/SCVB, NRC
Mr. John Boska, NRR/DPR/MSD/MSPB, NRC
Illinois Emergency Management Agency - Division of Nuclear Safety

Enclosure

Quad Cities Nuclear Power Station, Units 1 and 2

**Second Six-Month Status Report for the Implementation of Order EA-12-049, Order
Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-
Design-Basis External Events**

(13 pages)

Enclosure

Quad Cities Nuclear Power Station, Units 1 and 2 Second Six Month Status Report for the Implementation of Order EA-12-049, Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events

1 Introduction

Quad Cities Nuclear Power Station, Units 1 and 2, developed an Overall Integrated Plan (Reference 1 in Section 8) documenting the diverse and flexible strategies (FLEX) in response to Reference 2. This enclosure provides an update of milestone accomplishments since submittal of the last status report, including any changes to the compliance method, schedule, or need for relief/relaxation and the basis, if any.

2 Milestone Accomplishments

None have been completed since the last update, several have been started.

3 Milestone Schedule Status

The following provides an update to Attachment 2 of the Overall Integrated Plan. It provides the activity status of each item, and whether the expected completion date has changed. The dates are planning dates subject to change as design and implementation details are developed.

The revised target completion dates impact the order implementation date. An explanation of the impact of these changes is provided in Section 5 of this enclosure.

Milestone Schedule

Milestone	Target Completion Date	Activity Status	Revised Target Completion Date
Submit 60 Day Status Report	Oct 2012	Complete	
Submit Overall Integrated Plan	Feb 2013	Complete	
Contract with RRC		Complete	
Submit 6 Month Updates:			
Update 1	Aug 2013	Complete	
Update 2	Feb 2014	Complete with this submittal	
Update 3	Aug 2014	Not Started	
Update 4	Feb 2015	Not Started	
Update 5	Aug 2015	Not Started	

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Milestone	Target Completion Date	Activity Status	Revised Target Completion Date
Update 6	Feb 2016	Not Started	
Update 7	Aug 2016	Not Started	
Submit Completion Report		Not Started	See Section 5 of this enclosure.
Modifications Development & Implementation:			
Unit 1 Modification Development (All FLEX Phases)	Feb 2014	Started	April 2014
Unit 1 Modification Implementation (All FLEX Phases)	Apr 2015	Not Started	Mar 2015
Unit 2 Modification Development (All FLEX Phases)	Mar 2015	Started	
Unit 2 Modification Implementation (All FLEX Phases)	Apr 2016	Not Started	
Procedures:			
Create Site-Specific Procedures	Apr 2015	Started	Mar 2015
Validate Procedures (NEI 12-06, Sect. 11.4.3)	Apr 2015	Not Started	Mar 2015
Create Maintenance Procedures	Apr 2015	Not Started	Mar 2015
Perform Staffing Analysis	Nov 2014	Started	
Storage Plan and Construction	Apr 2015	Started	Mar 2015
FLEX Equipment Acquisition	Apr 2015	Started	Mar 2015
Training Completion	Apr 2015	Not Started	Mar 2015
Regional Response Center Operational	Dec 2014	Started	
Unit 1 FLEX Implementation	Apr 2015	Started	March 2015 See Section 5 of this enclosure.
Unit 2 FLEX Implementation	Apr 2016	Started	See Section 5 of this enclosure.
Full Site FLEX Implementation	Apr 2016	Started	See Section 5 of this enclosure.

4 Changes to Compliance Method

(OIP pages 5, 6, 11 and 12) Detailed in the OIP, Timeline item 16 and pages 11 and 12, Reactor Water Level control discusses suppression chamber (SC) water temperature limits on RCIC turbine-pump operation. The SC temperature limit for continued RCIC operation changed from 230°F to 240° F when maintaining maximum turbine speed and minimum bearing clearance and analysed in Reference 5.

(OIP pages 13, 14, 17) Additional Key Reactor Parameters have been identified external to the Control Room (remote locations) that can be utilized if necessary. These instruments are: Reactor Water Level – LI 1(2)-263-59A, 2201(2)-5 instrument rack; LI 1(2)-263-59B, 2201(2)-6 instrument rack; LI 1(2)-263-151A, 2201(2)-7 instrument rack and LI 1(2)-263-151B, 2201(2)-8 instrument rack; Reactor Pressure – PI 1(2)-263-60A, 2201(2)-5 instrument rack; PI 1(2)-263-60B, 2201(2)-6 instrument rack and PI 1(2)-1291-49, 2201(2)-2 instrument rack.

Two seismically protected independent deep wells will provide makeup water via hoses to either of the two RHR system Storz connections. Either one of the two wells will provide clean water to both units. These full-capacity FLEX deep well pumps will be powered by a portable diesel powered generator, which will be stored in the FLEX storage building. Both wells will be protected from high winds and Local Intense Precipitation (LIP) flood levels. One of the wells will be at an elevated location for use in a maximum flood response. In the event of the loss of downstream river dam and many of the other initiating events, these pumps will be utilized to assure all FLEX response water requirements are met.

(OIP page 15) The second Storz connection design has changed from the OIP, pages 15, 25, 17 and 26. The second Storz connection location is to be installed on each unit's condensate transfer system piping, which is normally used to refill the RHR system following system piping draining for maintenance. Located on the ground floor (595') reactor building on the central wall between Units 1 and 2, the piping provides multiple fill points to both loops of the RHR system. Functioning like the original, this connection will allow supplying water to both the RPV and the Suppression Chamber. Hose routing to this connection point will not require use of the stairwell to access second floor (623') of the reactor building. This connection will no longer be located above the maximum flood level (change to Flooding section on pages 18, 27, 36 and 44); however, the Quad Cities river flood strategy does not solely rely on use of this connection and necessary connections will be made prior to reaching the maximum flood level. This connection is located in the Reactor Building. (See revised Attachment 3, Conceptual sketch.)

(OIP page 23, 26) Modification changes to the Severe Accident Capable Vent per NRC Order Number EA-13-109 are in conceptual phase; further detail will be provided in a subsequent six-month update.

(OIP page 23, 26) For Key Containment Parameters, DW pressure instrument 1(2)-1001-100 on instrument rack 2201(2)-5 is added.

(OIP page 25) Suppression Pool Makeup: Suppression Pool makeup can also be supplied by the FLEX deep well pumps similar to the RPV makeup, via the existing A RHR loop connection or new Condensate Transfer to RHR system connection.

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(OIP page 34) The Spent Fuel Pool Makeup strategy has changed. A Storz connection will be added to the Unit 1 Fuel Pool assist located in the Reactor Building ground floor (595') and the lower connection to bypass the fuel pool assist spool piece has been deleted. This will allow connections of FLEX pump or previously discussed FLEX deep well pump directly to the Fuel Pool assist piping for addition of water for makeup to the spent fuel pools. The Fuel Pool Assist piping will be treated as an alternate path. The primary and seismic path will be through the use of hoses to add water to the fuel pool.

(OIP page 41) For Key Parameters, battery voltage local indicators U1(2) 125 VDC Dist panel cubicle C01, U1(2) 250 VDC Dist panel B01 are added.

(OIP page 42) The Quad Cities OIP utilized staged diesel generators with connections via the 480V Switchgear. This connection method was changed to add 480V Diesel Generator connection points to the Switchgear for connection of portable Diesel Generators to repower the 480V AC distribution system. The 480V Diesel Generators will be deployed from the FLEX storage building and will make connections to the Switchgear via portable cables.

5 Need for Relief/Relaxation and Basis for the Relief/Relaxation

NRC Order EA-12-049 (Reference 2) requires implementation of Mitigation Strategies to include procedures, guidance, training, and acquisition, staging, or installing of equipment needed for the strategies. The Overall Integrated Plan (Reference 1) provided the Quad Cities Station response to the NRC Order EA-12-049. The cover letter identifies that delays in implementing the Hardened Containment Vent System as required by NRC order EA-13-109 will also affect implementation of the Mitigation Strategies Order EA-12-049 actions. The Reference 1 enclosure describes the Quad Cities Station Mitigation Strategies that is based on venting the containment using the Hardened Containment Vent System. It also describes that a modification to install a Hardened Containment Vent System (HCVS) is required. Thus the Quad Cities Station NRC Order EA-12-049 response provided in Reference 1 was premised on installation and use of a Hardened Containment Vent System as required by NRC Order EA-12-050.

Upon issuance of NRC Order EA-13-109 (Reference 3), the NRC staff changed technical and schedule requirements applicable to the Hardened Containment Vent System and rescinded the requirements of the NRC Order EA-12-050. As a result, full compliance to the Mitigation Strategies required by NRC Order EA-12-049 and described in Reference 1 for Quad Cities Station Units 1 and 2 will not be achieved until compliance to NRC Order EA-13-109 is achieved. Therefore, relaxation from the Mitigation Strategies (FLEX) full implementation date, as specified in NRC Order 12-049, Section IV.A.2 requirements is needed. The associated request for relaxation (including the need and basis) is being submitted separately.

The FLEX equipment and modifications required to implement the mitigation strategies required by NRC Order EA-12-049 will be completed and available for use in accordance with the implementation schedule requirements specified in NRC Order EA-12-049 except (per the upcoming request for relaxation) primary containment wetwell (torus) venting capability. Until full containment wetwell venting capability is installed to meet the requirements of NRC Order EA-13-109, Quad Cities Nuclear

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Power Station, Units 1 and 2 will maintain the current primary containment venting strategy in accordance with existing Emergency Operating Procedures.

In summary, the Quad Cities Overall Integrated Plan for Mitigation Strategies (Reference 1) will be met as planned and scheduled, except for areas impacted by the NRC Order EA-13-109 on the Hardened Containment Vent System, which will be discussed in the request for relaxation being submitted separately.

6 Open Items from Overall Integrated Plan and Draft Safety Evaluation

The following tables provide a summary of the open items documented in the Overall Integrated Plan (Reference 1) or the Draft Safety Evaluation (SE) (Reference 6), and the status of each item.

Section Reference	Overall Integrated Plan Open Item	Status
Sequence of Events (p. 4)	1. The times to complete actions in the Events Timeline are based on operating judgment, conceptual designs, and current supporting analyses. The final timeline will be time validated once detailed designs are completed and procedures are developed, and the results will be provided in a future six-month update.	Not Started
Sequence of Events (p. 4,5)	2. Issuance of BWROG document NEDC-33771P, "GEH Evaluation of FLEX Implementation Guidelines," on 01/31/2013 did not allow sufficient time to perform the analysis of the deviations between Exelon's engineering analyses and the analyses contained in the BWROG document prior to submittal of this Integrated Plan. This analysis is expected to be completed, documented on Attachment 1B, and provided to the NRC in the August 2013 six-month status update.	Completed
Sequence of Events (p. 6)	3. Additional work will be performed during detailed design development to ensure Suppression Pool temperature will support RCIC operation, in accordance with approved BWROG analysis, throughout the event.	Started

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Section Reference	Overall Integrated Plan Open Item	Status
Sequence of Events (p. 7)	4. Initial calculations were used to determine the fuel pool timelines. Formal calculations will be performed to validate this information during development of the Spent Fuel Pool Cooling strategy detailed designs, and will be provided in a future six-month update.	Started
Multiple Sections	5. Procedures and programs will be developed to address storage structure requirements, haul path requirements, and FLEX equipment requirements relative to the external hazards applicable to Quad Cities	Started
Programmatic controls (p. 8)	6. Quad Cities Nuclear Power Station will implement an administrative program for FLEX to establish responsibilities, and testing and maintenance requirements.	Started
Multiple Sections	7. Detailed designs based on the current conceptual designs will be developed to determine the final plan and associated mitigating strategies. Analysis will be performed to validate that the plant modifications, selected equipment, and identified mitigating strategy can satisfy the safety function requirements of NEI 12-06. Once these designs and mitigating strategies have been fully developed, Exelon will update the integrated plan for Quad Cities Nuclear Power Station during a scheduled six-month update. This update will include any changes to the initial designs as submitted in this Integrated Plan.	Started
Maintain Core Cooling Phase 1 (p.13)	8. Guidance will be provided to ensure that sufficient area is available for deployment and that haul paths remain accessible without interference from outage equipment during refueling outages.	Started

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Section Reference	Overall Integrated Plan Open Item	Status
Maintain Spent Fuel Pool Cooling Phase 1 (p.32)	9. Evaluation of the spent fuel pool area for steam and condensation has not yet been performed. The results of this evaluation and the vent path strategy, if needed, will be provided in a future six-month update.	Started
Safety Function Support (p. 42)	10. Habitability conditions will be evaluated and a strategy will be developed to maintain RCIC habitability	Started
Safety Function Support (p. 42)	11. Habitability conditions will be evaluated and a strategy will be developed to maintain Main Control Room habitability.	Started
Safety Function Support (p. 43)	12. Battery Room Ventilation: Alternate ventilation will be provided to address Hydrogen generation and cold weather, as required.	Started
Safety Function Support (p. 43)	13. Fuel Oil Supply to Portable Equipment: A detailed fuel oil supply plan will be developed.	Started
Attachment 1A, Item 20 (p.59)	14. Provide alternate cooling to the RCIC rooms. Procedure to be developed.	Started

Section Reference	Draft Safety Evaluation / Audit Questions Open Item	Status
3.2.3.A	<u>SIGNIFICANT OPEN Item</u> . Generic concern related to adoption of Revision 3 to the BWROG EPG/SAG [Emergency Procedure Guidelines/Severe Accident Guidelines] relating to potential detrimental effects on containment response.	On <u>January 9, 2014</u> , the NRC informed NEI that changes to the containment venting strategies as described in the <u>BWROG information report</u> "BWR Containment Venting" Revision 1 dated 10/29/2013 are acceptable for <u>Order EA-12-049</u> . Completed
3.2.4.6.A	<u>OPEN Item</u> Licensee asserts 120 °F used for habitability in SBO is adequate for FLEX. Habitability of the control room should consider 110 degree F temperature	Started

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	limits of NUMARC 87-00 and MIL-STD-1472C.	
3.3.2.A	<u>OPEN Item</u> Control of equipment and connections for unavailability needs to be addressed.	Started
3.4.B	<u>OPEN Item</u> Details not provided to demonstrate the minimum capabilities for offsite resources will be met per NEI12-06 Section 12.2.	Quad Cities has established a contract with Pooled Equipment Inventory Company (PEICo) and has joined the Strategic Alliance for FLEX Emergency Response (SAFER) Team Equipment Committee for off-site facility coordination. The contract with SAFER addresses items in NEI 12-06 section 12.2. Completed
3.1.1.2.A	<u>Confirmatory Item</u> Studies for liquefaction and the effects on haul paths and storage location(s) are not complete.	Started
3.1.1.2.B	<u>Confirmatory Item</u> A postulated downstream dam failure from a seismic event is still being evaluated.	Started
3.1.1.2.C	<u>Confirmatory Item</u> Need to confirm implementation of strategy for power to move or deploy FLEX equipment and opening of doors.	Started
3.1.1.3.A	<u>Confirmatory Item</u> Plans for strategies have insufficient information to demonstrate alternate sources of instrument readings and adequate tolerances/accuracies if there is seismic impact to primary sources. Also, need identification of installed instrumentation location and power source.	Started
3.1.1.3.B	<u>Confirmatory Item</u> Need identification of instrumentation used to monitor FLEX electrical power equipment including measurement tolerance/accuracy.	Started
3.1.2.2.A	<u>Confirmatory Item</u> A detailed fuel supply plan is to be provided in a future 6-month status update including what is needed, what is available, and how it will be transported.	Started
3.1.3.2.A	<u>Confirmatory Item</u> Completion of development of an administrative program to ensure pathways remain clear or compensatory actions will be implemented to ensure all strategies can be deployed during all modes of operation. Procedures	Started

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	and programs are to be developed.	
3.1.3.2.B	<u>Confirmatory Item</u> Completion of assessment on the adequacy of the debris removal equipment and the effect on the timeline to assure the critical times are capable of being met. This will be tracked as an open item in the 6 month update.	Started
3.2.1.1.A	<u>Confirmatory Item</u> Need benchmarks to demonstrate Modular Accident Analysis Program (MAAP)4 is the appropriate code for simulation of ELAP.	Started
3.2.1.1.B.	<u>Confirmatory Item</u> The collapsed level must remain above Top of Active Fuel (TAF) and the cool down rate must be within technical specification limits in the MAAP4 analysis.	Started
3.2.1.1.C.	<u>Confirmatory Item</u> MAAP4 must be used in accordance with Sections 4.1, 4.2, 4.3, 4.4, and 4.5 of the June 2013 position paper.	Started
3.2.1.1.D.	<u>Confirmatory Item</u> In using MAAP4, the licensee must identify and justify the subset of key modeling parameters cited from Tables 4-1 through 4-6 of the "MAAP4 Application Guidance, Desktop Reference for Using MAAP4 Software, Revision 2" (Electric Power Research Institute Report 1020236).	Started
3.2.1.1.E.	<u>Confirmatory Item</u> The specific MAAP4 analysis case that was used to validate the timing of mitigating strategies in the integrated plan must be identified and available on the e-Portal for NRC staff to view. Alternately, a comparable level of information may be included in the supplemental response.	Started
3.2.1.2.A.	<u>Confirmatory Item</u> Questions remain unanswered regarding recirculation pump seal leakage rates. Aspects such as pressure dependence, leakage phase assumptions (single phase liquid, steam, mixed) are not discussed.	Started
3.2.1.3.A.	<u>Confirmatory Item</u> Need gap analysis between results of the licensee's analysis results and those of BWROG document NEDC-33771 P. Results are presented in 6 month update; however there is no analysis of the relevance of differences.	Started

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3.2.1.3.B.	<u>Confirmatory Item</u> Licensee plans further review and analysis to ensure suppression pool temperature will support RCIC operation.	Started
3.2.1.3.C.	<u>Confirmatory Item</u> Need identification of the minimum voltage required for the dc buses and the basis of that determination.	The minimum design voltages for the DC battery systems are 105V for the 125 VDC system and 210 V for the 250 VDC system. This is provided in the Quad Cities Technical Specifications B 3.8.4 DC Sources—Operating Completed
3.2.1.4.A.	<u>Confirmatory Item</u> Water quality issue and guidance on priority of water source usage need to be addressed.	Started
3.2.1.4.B.	<u>Confirmatory Item</u> Need completion of current evaluation of FLEX generator sizing calculation.	Started
3.2.1.4.C.	<u>Confirmatory Item</u> Need design and working pressure of hoses and fittings.	Started
3.2.1.6.A.	<u>Confirmatory Item</u> Licensee identified protection of equipment for Hardened Vent is to Order EA-13-109 (Reference 22). Explain if this is equivalent to Order EA-12-049, as Order EA-13-109 does not require protection from external events.	Started
3.2.2.A.	<u>Confirmatory Item</u> The licensee identified modifications and procedures for SFP cooling are in development.	Started
3.2.4.2.A.	<u>Confirmatory Item</u> Modifications to restore RCIC room cooling are being developed by the licensee.	Started
3.2.4.2.B.	<u>Confirmatory Item</u> Modifications to restore ventilation to the battery rooms via use of the portable FLEX generators to address hydrogen and cold weather are being developed by the licensee.	Started
3.2.4.4.A.	<u>Confirmatory Item</u> Procedures for emergency lighting are to be developed for deployment of hands free flashlights.	Started
3.2.4.4.B.	<u>Confirmatory Item</u> Confirm upgrades to communication system that resulted from the licensee communications assessment. (ADAMS Accession Nos. ML 12306A199 and ML13056A135.)	Started

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3.2.4.5.A.	<u>Confirmatory Item</u> Verify completion of drafted procedures for protected and internal locked area access.	Started
3.2.4.6.B.	<u>Confirmatory Item</u> Site industrial procedures and identification of protective clothing, ice vests/packs, bottled water, etc. is needed.	Procedure SA-AA-111 HEAT STRESS CONTROL addresses use of protective clothing, cooling garments and water use for rehydration. Completed
3.2.4.6.C.	<u>Confirmatory Item</u> Need to address the use of appropriate human performance aids (e.g., component marking, connection schematics, installation sketches, photographs, etc.) which shall be included in the FLEX guidance implementing the FLEX strategies.	Started
3.2.4.8.A.	<u>Confirmatory Item</u> The licensee did not provide any information regarding loading/sizing calculations of portable diesel generators(s) and strategy for electrical isolation for FLEX electrical generators from installed plant equipment.	Started
3.2.4.9.A.	<u>Confirmatory Item</u> Need detailed fuel plan including fuel storage tank, truck, and day tank volumes and how fuel quality is maintained in the day tanks and in portable FLEX equipment.	Started
3.2.4.10.A.	<u>Confirmatory Item</u> Need detailed battery load profile for all mitigating strategies and a detailed discussion of loads that will be shed, how they will be shed, and what are the effects of the load shed.	Started
3.4.A.	<u>Confirmatory Item</u> Procedures for interface with the RRC need to be developed.	Started

7 Potential Draft Safety Evaluation Impacts

There are no potential impacts to the Draft Safety Evaluation identified at this time.

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8 References

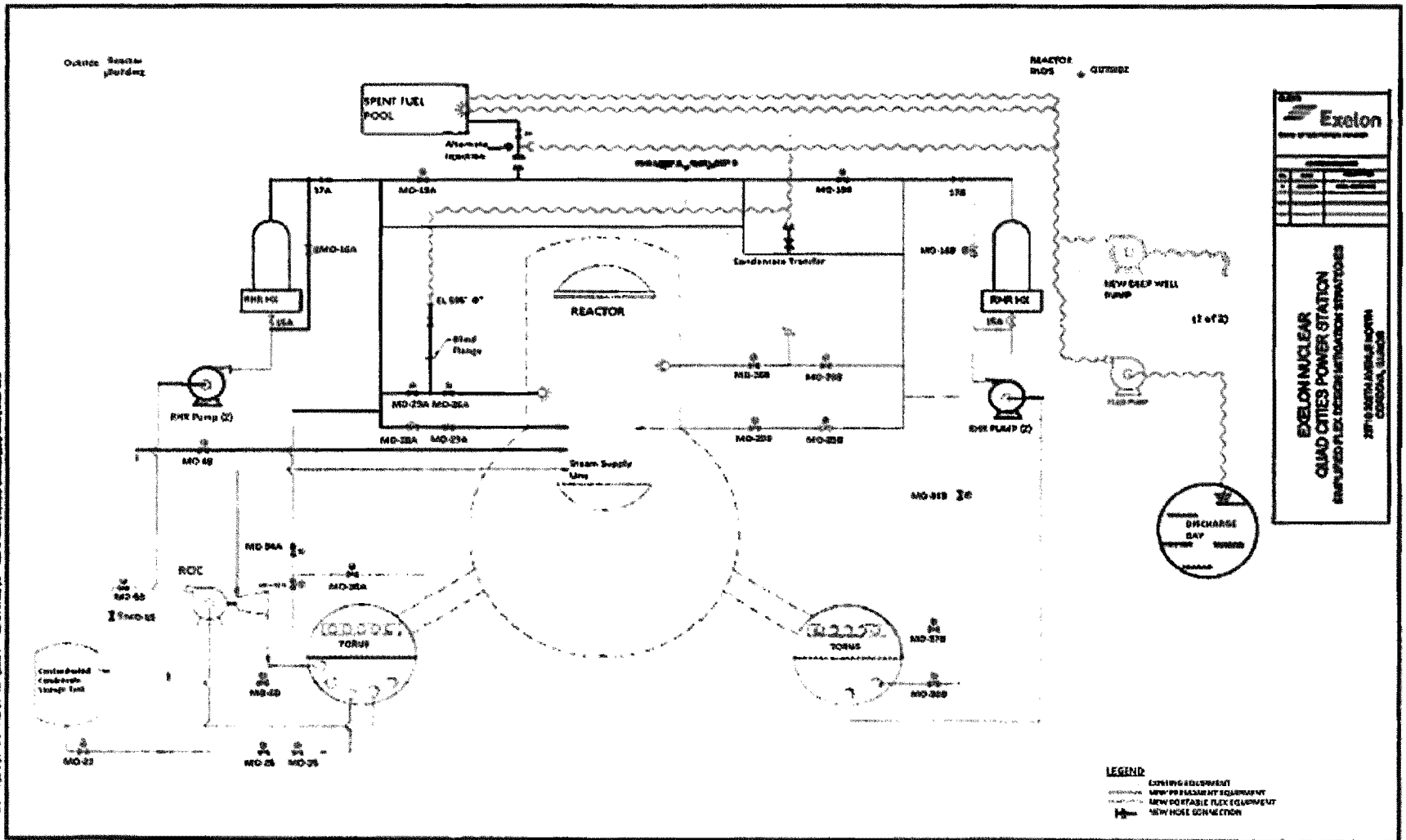
The following references support the updates to the Overall Integrated Plan described in this enclosure.

1. Quad Cities 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 Number EA-12-049),” dated February 28, 2013.
2. NRC Order Number EA-12-049, “Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events,” dated March 12, 2012.
3. NRC Order 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.
4. Quad Cities Nuclear Power Station, Units 1 and 2 First Six Month Status Report for the Implementation of Order EA-12-049, “Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events,” dated August 28, 2013.
5. RCIC Pump and Turbine Durability Evaluation – Pinch Point Study, February 2013, 0000-0155-1545-RO, DRF 0000-0155-1541, Revision 0
6. Quad Cities Nuclear Power Station, Units 1 and 2 – Interim Staff Evaluation Relating to Overall Integrated Plan in Response to Order EA-12-049 (Mitigation Strategies) (TAC NOS.MF 1048 and MF 1049), dated November 22, 2013.

9 Attachments

OIP Attachment 3 - Revised Conceptual Sketch

Attachment 3 Conceptual Sketches



2014-03-07 10:00 AM By: [illegible] Title: [illegible]

Exelon

EXELON NUCLEAR
QUAD CITIES POWER STATION
DISPLACED FLEX DESIGN MITIGATION STRUCTURES