



Order No. EA-12-051

RS-15-085

May 7, 2015

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: Report of Full Compliance with March 12, 2012 Commission Order Modifying Licenses  
with Regard to Reliable Spent Fuel Pool Instrumentation (Order Number EA-12-051)

References:

1. NRC Order Number EA-12-051, "Issuance of Order to Modify Licenses with Regard to Reliable Spent Fuel Pool Instrumentation," dated March 12, 2012
2. NRC Interim Staff Guidance JLD-ISG-2012-03, "Compliance with Order EA-12-051, Reliable Spent Fuel Pool Instrumentation," Revision 0, dated August 29, 2012
3. NEI 12-02, Industry Guidance for Compliance with NRC Order EA-12-051, "To Modify Licenses with Regard to Reliable Spent Fuel Pool Instrumentation," Revision 1, 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 Reliable Spent Fuel Pool Instrumentation (Order Number EA-12-051), 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 Reliable Spent Fuel Pool Instrumentation (Order Number EA-12-051), dated February 28, 2013 (RS-13-035)
6. NRC letter to Exelon Generation Company, LLC, Request for Additional Information Regarding Overall Integrated Plan for Reliable Spent Fuel Pool Instrumentation, dated June 7, 2013
7. Exelon Generation Company, LLC letter to NRC, Response to Request For Additional Information - Overall Integrated Plan in Response to Commission Order Modifying License Requirements for Reliable Spent Fuel Pool Instrumentation (Order EA-12-051), dated July 3, 2013 (RS-13-159)
8. Exelon Generation Company, LLC First Six-Month Status Report in Response to March 12, 2012 Commission Order Modifying Licenses with Regard to Reliable Spent Fuel Pool Instrumentation (Order Number EA-12-051), dated August 28, 2013 (RS-13-128)

9. Exelon Generation Company, LLC Second Six-Month Status Report in Response to March 12, 2012 Commission Order Modifying Licenses with Regard to Reliable Spent Fuel Pool Instrumentation (Order Number EA-12-051), dated February 28, 2014 (RS-14-025)
10. Exelon Generation Company, LLC Third Six-Month Status Report in Response to March 12, 2012 Commission Order Modifying Licenses with Regard to Reliable Spent Fuel Pool Instrumentation (Order Number EA-12-051), dated August 28, 2014 (RS-14-203)
11. Exelon Generation Company, LLC Fourth Six-Month Status Report in Response to March 12, 2012 Commission Order Modifying Licenses with Regard to Reliable Spent Fuel Pool Instrumentation (Order Number EA-12-051), dated February 27, 2015 (RS-15-033)
12. NRC letter to Exelon Generation Company, LLC, Quad Cities Nuclear Power Station, Units 1 and 2 – Interim Staff Evaluation and Request for Additional Information Regarding the Overall Integrated Plan for Implementation of Order EA-12-051, Reliable Spent Fuel Pool Instrumentation (TAC Nos. MF1052 and MF1053), dated October 9, 2013
13. NRC letter to Exelon Generation Company, LLC, Quad Cities Nuclear Power Station, Units 1 and 2 – Request for Additional Information Regarding the Overall Integrated Plan for Implementation of Order EA-12-051, Reliable Spent Fuel Pool Instrumentation (TAC Nos. MF1052 and MF1053), dated November 26, 2013

On March 12, 2012, the Nuclear Regulatory Commission (“NRC” or “Commission”) issued Order EA-12-051, “Order Modifying Licenses with Regard to Reliable Spent Fuel Pool Instrumentation,” (Reference 1) to Exelon Generation Company, LLC (EGC). Reference 1 was immediately effective and directed EGC to install reliable spent fuel pool level instrumentation. 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 (OIP) pursuant to Section IV, Condition C. Reference 2 endorsed industry guidance document NEI 12-02, Revision 1 (Reference 3) with clarifications and exceptions identified in Reference 2. Reference 4 provided the EGC initial status report regarding reliable spent fuel pool instrumentation. Reference 5 provided the Quad Cities Nuclear Power Station, Units 1 and 2 OIP.

Reference 1 required submission of a status report at six-month intervals following submittal of the OIP. References 8, 9, 10, and 11 provided the first, second, third, and fourth six-month status reports, respectively, pursuant to Section IV, Condition C.2, of Reference 1 for Quad Cities Station.

The purpose of this letter is to provide the report of full compliance with the March 12, 2012 Commission Order Modifying Licenses with Regard to Reliable Spent Fuel Pool Instrumentation (Order Number EA-12-051) (Reference 1) pursuant to Section IV, Condition C.3 of the Order for Quad Cities Nuclear Power Station, Units 1 and 2.

Quad Cities Station has installed two independent full scale level monitors for the Spent Fuel Pool (SFP) in response to Order EA-12-051. Quad Cities Station OIP Open Items have been addressed and closed as documented in References 8, 9, 10, and 11, and are considered

complete pending NRC Closure. The information provided herein documents full compliance for Quad Cities Nuclear Power Station, Units 1 and 2 with Reference 1.

EGC's response to the NRC OIP Requests for Additional Information (OIP RAIs), and the NRC Interim Staff Evaluation (ISE) Open Items (ISE RAIs) identified in References 6, 12 and 13 have been addressed and closed as documented in References 7, 8, 9, 10, and 11, and below, and are considered complete pending NRC Closure. The following table provides completion references for each NRC OIP RAI and ISE RAI.

OIP Open Item No. 1	Reference 8
OIP RAI No. 1	Reference 7
OIP RAI Nos. 2, 3, 4, 5, 6, 7, 8a, 8b	Reference 10
OIP RAI Nos. 8c, 8d	Reference 11 and updated with this submittal as provided below
OIP RAI No. 11	References 10 and 11
ISE RAI No. 1	Reference 9
ISE RAI Nos. 4, 5, 7	References 10 and 11
ISE RAI Nos. 12, 13 (replace OIP RAI 9 and 10, respectively)	Reference 10

Table Notes:

- ISE RAIs are not duplicated in the table above if previously issued as OIP RAIs in Reference 6.
- NRC Request for Additional Information letter (Reference 13) concerning revision to ISE RAI No. 1 is addressed by Reference 9 under ISE RAI No. 1.

It is EGC's understanding that the NRC Site Audit Report contains no remaining audit open items regarding Quad Cities Station compliance with NRC Order EA-12-051.

The table below documents the completion of the final remaining open action as identified in Reference 11. As stated above, EGC provides the response for the following item and considers it to be complete for Quad Cities Station.

Item	Description	Reference
<b>OIP Item 8 (RAI-8, Ref. 4)</b> c) A description of how functional checks will be performed, and the frequency at which they will be conducted. Describe how calibration tests will be performed, and the frequency at which they will be	c) Functional checks will be performed per Westinghouse functionality test procedure WNA-TP-04613-GEN at the Westinghouse recommended frequency. Calibration will be performed per a Quad Cities procedure based on the Westinghouse calibration procedure WNA-TP-04709-GEN at the	<u>Complete</u> With this Compliance submittal.

<p>conducted. Provide a discussion as to how these surveillances will be incorporated into the plant surveillance program.</p> <p>d) A description of what preventive maintenance tasks are required to be performed during normal operation, and the planned maximum surveillance interval that is necessary to ensure that the channels are fully conditioned to accurately and reliably perform their functions when needed.</p>	<p>Westinghouse recommended frequency. In accordance with Quad Cities Station modification process, maintenance and operating surveillance tasks have been developed for calibration, functional test, and channel verification procedures per the Westinghouse recommendations to ensure reliable, accurate and continuous SFPI functionality.</p> <p>d) Quad Cities Station has developed preventive maintenance tasks for the SFPI per Westinghouse recommendation identified in the technical manual WNA-GO-00127-GEN to assure that the channels are fully conditioned to accurately and reliably perform their functions when needed.</p>	<p><u>Complete</u> With this Compliance submittal.</p>
---	---	--

#### MILESTONE SCHEDULE – ITEMS COMPLETE

Milestone	Completion Date
Submit 60 Day Status Report	October 25, 2012
Submit Overall Integrated Plan	February 28, 2013
Submit Responses to RAIs	July 3, 2013
<b>Submit 6 Month Updates:</b>	
Update 1	August 28, 2013
Update 2	February 28, 2014
Update 3	August 28, 2014
Update 4	February 27, 2015
<b>Modifications:</b>	
Conceptual Design	3Q2012
Issue Exelon Fleet contract to procure SFPI Equipment	2Q2013
Begin Detailed Design Engineering	4Q2013
Complete and Issue SFPI Modification Package	2Q2014
Begin Installation	4Q2014
Complete SFPI Installation and Put Into Service	March 22, 2015

## **ORDER EA-12-051 COMPLIANCE ELEMENTS SUMMARY**

The elements identified below for Quad Cities Station, as well as the site overall integrated plan response submittal (Reference 5), and the 6-Month Status Reports (References 8, 9, 10, and 11), demonstrate compliance with Order EA-12-051.

### **IDENTIFICATION OF LEVELS OF REQUIRED MONITORING - COMPLETE**

Quad Cities Station has identified the three required levels for monitoring SFP level in compliance with Order EA-12-051. These levels have been integrated into the site processes for monitoring level during events and responding to loss of SFP inventory.

### **INSTRUMENT DESIGN FEATURES - COMPLETE**

The design of the instruments installed at Quad Cities Station complies with the requirements specified in the Order and described in NEI 12-02 "Industry Guidance for Compliance with NRC Order EA-12-051". The instruments have been installed in accordance with the station design control process.

The instruments have been arranged to provide reasonable protection against missiles. The instruments have been mounted to retain design configuration during and following the maximum expected ground motion. The instruments will be reliable during expected environmental and radiological conditions when the SFP is at saturation for extended periods. The instruments are independent of each other and have separate and diverse power supplies. The instruments will maintain their design accuracy following a power interruption and are designed to allow for routine testing and calibration.

The instrument display is readily accessible during postulated events and allows for SFP level information to be promptly available to decision makers.

### **PROGRAM FEATURES - COMPLETE**

Training for Quad Cities Nuclear Power Station, Units 1 and 2 has been completed in accordance with an accepted training process as recommended in NEI 12-02, Section 4.1.

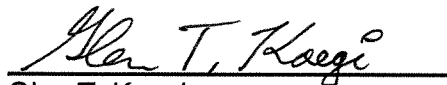
Operating and maintenance procedures for Quad Cities Station have been developed and integrated with existing procedures. Procedures have been verified and are available for use in accordance with the site procedure control program.

Site processes have been established to ensure the instruments are maintained at their design accuracy.

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 7<sup>th</sup> day of May 2015.

Respectfully submitted,

A handwritten signature in dark ink, appearing to read "Glen T. Kaegi", is written over a horizontal line.

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

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  
Mr. Jeremy S. Bowen, NRR/JLD/JOMB, NRC  
Ms. Jessica A. Kratchman, NRR/JLD/JPSB, NRC  
Mr. John P. Boska, NRR/JLD/JOMB, NRC  
Illinois Emergency Management Agency - Division of Nuclear Safety