



Order No. EA-12-051

RS-15-136

July 1, 2015

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

Limerick Generating Station, Units 1 and 2
Renewed Facility Operating License Nos. NPF-39 and NPF-85
NRC Docket Nos. 50-352 and 50-353

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, "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 (RS-12-181)
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-13-032)
6. NRC letter to Exelon Generation Company, LLC, Request for Additional Information Regarding Overall Integrated Plan for Reliable Spent Fuel Pool Instrumentation, dated June 24, 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 18, 2013 (RS-13-177)
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-13-122)

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-14-022)
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-14-200)
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-15-030)
12. NRC letter to Exelon Generation Company, LLC, Limerick Generating 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, dated October 23, 2013
13. NRC letter to Exelon Generation Company, LLC, Limerick Generating Station, Units 1 and 2 – Report for the Audit Regarding Implementation of Mitigating Strategies and Reliable Spent Fuel Pool Instrumentation Related to Orders EA-12-049 and EA-12-051, dated March 17, 2015

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 Limerick Generating 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 Limerick Generating Station, Units 1 and 2.

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 Limerick Generating Station, Units 1 and 2.

Limerick Station has installed two independent full scale level monitors for the Spent Fuel Pool (SFP) in response to Order EA-12-051. Limerick 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 Limerick Generating 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 and 12 have been addressed and closed as documented in References 7, 8, 9, 10, and 11, and below, and are considered complete pending NRC closure. EGC's response to the NRC audit questions and additional audit open items have been addressed as documented in the NRC Site Audit Report (Reference 13). Reference 13 contains no remaining audit open items regarding Limerick Station compliance with NRC Order EA-12-051.

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 No. 2 (Open Item No. 3, Ref. 6)	Reference 10
OIP RAI No. 3 (Open Item No. 4, Ref. 6)	
OIP RAI No. 4 (Open Item No. 5, Ref. 6)	
OIP RAI No. 6 (Open Item No. 7, Ref. 6)	
OIP RAI No. 7 (Open Item No. 8, Ref. 6)	
OIP RAI No. 9 (Open Item No. 10, Ref. 6)	
OIP RAI No. 10 (Open Item No.11, Ref. 6)	
OIP RAI No. 5 (Open Item No. 6, Ref. 6)	Reference 10 and updated with this submittal as provided below
OIP RAI Nos. 8a, 8b (Open Item No. 9, Ref. 6)	Reference 11
OIP RAI Nos. 8c, 8d (Open Item No. 9, Ref. 6)	Reference 11 and updated with this submittal as provided below
OIP RAI No. 11 (Open Item No. 12, Ref. 6)	References 10 and 11
ISE RAI No. 1a (Open Item No. 1, Ref. 12)	Reference 11 and updated with this submittal as provided below
ISE RAI No. 2 (Open Item No. 2, Ref. 12)	Reference 9
ISE RAI No. 4 (Open Item No. 3, Ref. 12)	Reference 10
ISE RAI No. 6 (Open Item No. 4, Ref. 12)	
ISE RAI No. 7 (Open Item No. 5, Ref. 12)	
ISE RAI No. 14 (Open Item No. 7, Ref. 12)	
ISE RAI No. 15 (Open Item No. 8, Ref. 12)	
ISE RAI No. 1b (Open Item No. 1, Ref. 12)	Reference 11
ISE RAI No. 9 (Open Item No. 6, Ref. 12)	References 10 and 11

Note: ISE RAIs are not duplicated in the table above if previously issued as OIP RAIs in Reference 6.

The following table documents the completion of the final remaining open actions as identified in Reference 11, and the revised response to OIP RAI No. 5 regarding the additional instrument channel separation provided as described in Reference 13. As stated above, EGC provides the response for the following items and considers them to be complete for Limerick Station.

Item	Description	Reference
<p>OIP Open Item No. 6 (RAI- 5, Ref. 6)</p> <p>b) Further information on how each level measurement system, consisting of level sensor electronics, cabling, and readout devices will be designed and installed to address independence through the application and selection of independent power sources, the use of physical and spatial separation, independence of signals sent to the location(s) of the readout devices, and the independence of the displays.</p>	<p>To resolve the NRC concern identified during the Audit for implementation of mitigating strategies and reliable spent fuel pool instrumentation related to Order EA-12-051, the junction boxes for the Primary and Backup channels coax cables have been relocated to provide a separation of approximately 13 feet (Reference 13).</p>	<p><u>Complete</u></p>
<p>OIP Open Item No. 9 (RAI-8c, 8d, Ref. 6)</p> <p>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 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</p>	<p>c) The Limerick functional test and calibration requirements are combined in the same procedure IC-11-00339 for both the Primary and Backup channels. The Limerick procedure is associated with a preventive maintenance task that establishes the required performance of the procedure within 60 days of a scheduled refueling outage of either unit. This procedure is based on the Westinghouse Two Point Verification Method and WNA-TP-04709-GEN Spent Fuel Pool Instrument System Calibration Procedure. The Limerick procedure notes the high point reading (Point 1) from the output reading on the digital display. The low point reading (Point 2) on the digital display is noted by lifting the Coax cable out of the pool to a predefined marked point on the cable. The probe is lowered back into the water freely suspended from the launch plate. The level indication is recorded. If the values recorded for the 2-point check are within the tolerance specified, the procedure is exited. If the values</p>	<p><u>Complete</u></p>

<p>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>are not within tolerance, an Issue Report (IR) will be generated and calibration will be performed to bring the indication within the calibration requirements.</p> <p>The calibration steps of the Limerick procedures were taken from Westinghouse document WNA-TP-04709-GEN Spent Fuel Pool Instrument System Calibration Procedure.</p> <p>d) Limerick Station developed preventive maintenance tasks for 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>ISE Open Item No.1 (RAI 1a, Ref. 12) a) A description of the operational circumstances under which the gates are expected to be installed, and describe how continuous back-up monitoring (e.g., direct visual observation) is available when the gates are installed.</p>	<p>Procedure M-097-009 has been revised to notify Shift Management when the cask pit gate is to be installed and to establish compensatory actions if the gate is installed greater than 90 days.</p>	<p><u>Complete</u></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 18, 2013
Submit 6 Month Updates:	
Update 1	August 28, 2013
Update 2	February 28, 2014
Update 3	August 28, 2014
Provide Final Safety Evaluation (SE) Information	September 30, 2014
Update 4	February 27, 2015
Modifications:	
Conceptual Design	3Q2012
Issue Exelon Fleet contract to procure SFPI Equipment	2Q2013

Milestone	Completion Date
Begin Detailed Design Engineering	3Q2013
Complete and Issue SFPI Modification Package	3Q2014
Begin Installation	1Q2015
Complete SFPI Installation and Put Into Service	April 25, 2015

ORDER EA-12-051 COMPLIANCE ELEMENTS SUMMARY

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

IDENTIFICATION OF LEVELS OF REQUIRED MONITORING - COMPLETE

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

INSTRUMENT DESIGN FEATURES - COMPLETE

The design of the instruments installed at Limerick 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 Limerick Generating Station, Units 1 and 2, has been completed in accordance with an accepted training process as recommended in NEI 12-02, Section 4.1. The completion of the training is as follows:

Operations training is complete.

Maintenance completed on-the-job training for calibrating the level instruments.

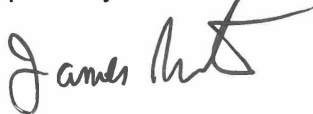
Operating and maintenance procedures for Limerick Station have been developed and integrated with existing procedures. Procedures have been verified and are available for use in accordance with the site procedure control program.

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 1st day of July 2015.

Respectfully submitted,



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cc: Director, Office of Nuclear Reactor Regulation
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