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10 CFR 50.55a

June 11, 2018

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: Relief Request I4R-18 Associated with Inaccessible Emergency Service Water and Residual Heat Removal Service Water Pump Supports

Attached for your review is a relief request associated with the Inservice Inspection (ISI) Program for Limerick Generating Station (LGS), Units 1 and 2. Specifically, this relief request is associated with inaccessible Emergency Service Water (ESW) and Residual Heat Removal Service Water (RHRSW) pump supports. LGS is currently in the fourth 10-year interval, which began on February 1, 2017. We request your approval by June 11, 2019.

There are no regulatory commitments in this letter.

If you have any questions concerning this letter, please contact Tom Loomis at (610) 765-5510.

Respectfully,

James Barstow
Director - Licensing & Regulatory Affairs
Exelon Generation Company, LLC

Attachment: Relief Request I4R-18

cc: USNRC Region I, Regional Administrator
USNRC Senior Resident Inspector, LGS
USNRC Project Manager, LGS
R. R. Janati, Pennsylvania Bureau of Radiation Protection

Attachment

Relief Request I4R-18

Relief Request I4R-18 Associated with Inaccessible Emergency Service Water and Residual Heat Removal Service Water Pump Supports In Accordance with 10 CFR 50.55a(z)(2) --Hardship or Unusual Difficulty without Compensating Increase in Level of Quality or Safety--

1.0 ASME Code Components Affected

Code Class: 3
Reference: Table IWF-2500-1
Examination Category: F-A
Item Number: F1.40
Description: Relief for the visual examination (VT-3) of the ASME Class 3 Pump Supports on the ESW and RHRSW Pumps

Component Number:

ESW Pump	Upper Support	Lower Support
A	0A-P548-SRUP	0A-P548-SRLO
B	0B-P548-SRUP	0B-P548-SRLO
C	0C-P548-SRUP	0C-P548-SRLO
D	0D-P548-SRUP	0D-P548-SRLO

RHRSW Pump	Upper Support	Lower Support
A	0A-P506-SRUP	0A-P506-SRLO
B	0B-P506-SRUP	0B-P506-SRLO
C	0C-P506-SRUP	0C-P506-SRLO
D	0D-P506-SRUP	0D-P506-SRLO

Drawing Number: Emergency Service Water (ESW): M-012-00019
Residual Heat Removal Service Water (RHRSW) System: M-012-00020

2.0 Applicable Code Edition and Addenda

The Fourth Interval Inservice Inspection (ISI) Program is based on the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel (B&PV) Code, Section XI, 2007 Edition, 2008 Addenda.

3.0 Applicable Code Requirement

ASME Section XI, 2007 Edition, 2008 Addenda, Table IWF-2500-1, Examination Category F-A, Item F1.40 requires a visual examination (VT-3) of 100% of the supports as modified by Note 3. Note 3 states that "for multiple components other than piping, within a system of similar design, function, and service, the supports of only one of the multiple components are required to be examined."

4.0 Reason for Request

Pursuant to 10 CFR 50.55a(z)(2), relief is requested from the Code required 100% visual examination (VT-3) of the ESW and RHRSW pump supports, on the basis that compliance with these specified Code requirements is a hardship without a compensating increase in the level of quality and safety.

The Limerick Generating Station (LGS), Units 1 and 2 have common ESW and RHRSW systems. The ESW system provides cooling water flow to essential equipment during a Loss-of-Offsite Power (LOOP) or Loss-of-Coolant Accident (LOCA) as described in the LGS, Units 1 and 2 Updated Final Safety Analysis Report (UFSAR) Section 9.2.2 ("Emergency Service Water System"). The RHRSW system provides a reliable source of cooling water for all operating modes of the RHR system, including heat removal under post-accident conditions. It also provides water to flood the reactor core, or to spray the primary containment after an accident, if necessary, as described in UFSAR Section 9.2.3 ("RHR Service Water System").

There are two carbon steel seismic restraints (i.e., the upper support and lower support) around the column of each ESW and RHRSW pump. These restraints limit the movement of the pump columns during a seismic event. At the nominal Spray Pond water level (elevation 251') the upper seismic restraint is partially covered by raw water (i.e., Spray Pond inventory) and the lower seismic restraint is fully submerged. The design of the Spray Pond Pump Structure does not allow the inspection of the seismic restraints to be performed unless the pumps are removed from the pump pit.

In the last seven years, 6 of the 8 (3 ESW and 3 RHRSW) pumps have been replaced. With the old pump removed, a VT-3 examination of the upper and lower supports was attempted. Due to poor water clarity, a remote inspection was attempted at approximately 6" from the support; however, the Code-required visual prerequisites could not be obtained. Additionally, there was scaling on the seismic restraint that could not be removed for the inspection. Due to the poor water clarity and the buildup of scale on the supports, a qualified VT-3 examination could not be performed.

Although a qualified VT-3 examination could not be performed, the inspection did assess the condition of the seismic supports to the best of our ability. The attempted examination found no evidence of structural deformation, missing, detached or loosened items.

Sluice gates can be closed to isolate an ESW/RHRSW wet well from the Spray Pond, and the ESW/RHRSW pump wet well could potentially be drained. However, when the three sluice gates of an ESW/RHRSW pump wet well are closed, one loop of ESW and one loop of RHRSW are isolated from the Spray Pond. This alignment would place LGS, Units 1 and 2 in a 72-hour shutdown action (Technical Specification (TS) 3.7.1.1, Action a.3 for RHRSW system and TS 3.7.1.2, Action a.3 for ESW system).

To the best of our knowledge, the station has never used the sluice gates to drain an ESW/RHRSW pump wet well. Based on review of the ESW and RHRSW system out of service durations associated with previously completed pump replacement activities, physical work for motor and pump removal and reinstallation and post maintenance testing requires a minimum of 67 hours. Therefore, the additional activities associated with draining and refilling the pump wet well, scaffold installation/removal and restraint cleaning/inspection could not be performed within a 72-hour LCO which would result in a dual unit shutdown due to inoperability of one loop of ESW and RHRSW for greater than 72 hours.

To perform a qualified VT-3 examination of the ESW and RHRSW pump seismic restraints, a modification to the spray pond pumphouse structure would be necessary to isolate each pump compartment by possibly adding sluice gates for each individual RHRSW and ESW pump. Currently, each compartment contains two ESW pumps and two RHRSW pumps (i.e., one loop of each system). Without such modifications, the actions required to perform a qualified VT-3 examination of the ESW and RHRSW seismic restraints cannot be performed within the 72-hour LCO, and therefore, a dual unit outage is required to comply with ASME Code. Accordingly, performing this inspection is a hardship without a compensating increase in the level of quality or safety.

5.0 Proposed Alternative and Basis for Use

As an alternative to performing a qualified VT-3 examination of the ESW and RHRSW seismic restraints, the station will perform a best effort visual examination of the upper seismic restraint each time the ESW or RHRSW pump is disassembled and removed for maintenance. This examination will be performed remotely to look for evidence of structural deformation and missing, detached, or loosened support items. The upper seismic restraint is located in the most limiting environment since it is exposed to continuous wet and dry cycles due to normal variations in Spray Pond water level.

Additionally, from a review of the design calculation, there is a minimum safety factor of 25 based on the Operating Basis Earthquake (OBE) allowable stresses; this margin is available for any material loss due to corrosion. With this available margin, a best-effort visual examination is sufficient to identify degradation that would affect the ability of the ESW and RHRSW seismic restraints to perform their function and, therefore, provides an acceptable alternative to the Code-required VT-3 visual examination.

6.0 Duration of Proposed Alternative

Relief is requested for the current fourth ten-year ISI interval and the remainder of plant life for LGS, Units 1 and 2. The renewed operating license expires on October 26, 2044 for Unit 1 and June 22, 2049 for Unit 2.

7.0 Precedents

None

8.0 References

None