

10 CFR 50.55a

March 28, 2020

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

Limerick Generating Station, Unit 1
Renewed Facility Operating License No. NPF-39
NRC Docket No. 50-352

Subject: Relief Request I4R-23 Associated with Pandemic Related Issues -
Examination of Containment Surfaces Requiring Augmented Examination
(Category E-C)

Based on the current situation associated with pandemic related issues, Exelon Generation Company, LLC (Exelon) is requesting a proposed alternative to the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section XI, "Rules for Inservice Inspection of Nuclear Power Plant Components" for the Containment Inservice Inspection Program. Attached is the proposed alternative associated with Examination of Containment Surfaces Requiring Augmented Examination (Category E-C).

At the current time, Exelon is reducing outage activities associated with the Limerick Generating Station, Unit 1 outage which began on Saturday March 28, 2020 in order to limit the spread of the COVID-19 virus. As discussed in this relief request, many of these activities involve close contact and a limit to social distancing. Further review has determined that close contact required to perform the suppression pool inspections would be detrimental to the occupational health and safety of the workforce and result in the potential to spread the virus. Additionally, the station may experience critical shortages of personnel due to illness which will greatly affect completion of these required inspections during the current refuel outage. Accordingly, Exelon is requesting approval of this relief on an expedited basis.

Due to the urgent nature of this situation, Exelon is requesting approval of the attached relief request by March 31, 2020.

There are no regulatory commitments in this letter.

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

Respectfully,



David P. Helker
Sr. Manager, Licensing
Exelon Generation Company, LLC

Attachment: Relief Request I4R-23 Associated with Pandemic Related Issues - Examination of Containment Surfaces Requiring Augmented Examination (Category E-C)

cc: w/ Attachment
Regional Administrator - NRC Region I
NRC Senior Resident Inspector - Limerick Generating Station
NRC Project Manager - Limerick Generating Station
R. R. Janati, Commonwealth of Pennsylvania

Attachment

Relief Request I4R-23 Associated with Pandemic Related Issues - Examination of Containment Surfaces Requiring Augmented Examination (Category E-C)

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**Relief Request I4R-23 Associated with Pandemic Related Issues - Examination of Containment Surfaces Requiring Augmented Examination (Category E-C) in Accordance with 10 CFR 50.55a(z)(2)
-- Hardship without a Compensating Increase in Level of Quality or Safety --**

1. ASME Code Component(s) Affected

Code Class: MC
Reference: Table IWE-2500-1
Examination Category: E-C
Item Number: E4.11
Component Description: Suppression Pool Liner – Submerged Areas
Suppression Pool Vent System – Submerged Areas
Drawing Number: Floor Plates: C-281
Wall Plates: C-282
Downcomers: C-293

2. Applicable Code Edition and Addenda

The Third Interval Containment Inservice Inspection (CISI) 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. Applicable Code Requirement

ASME Section XI, 2007 Edition, 2008 Addenda, Table IWE-2500-1, Examination Category E-C, Item E4.11 requires a visual examination (VT-1) of the identified surface areas each inspection period until the areas examined remain essentially unchanged for the next inspection period.

ASME Section XI, 2007 Edition, 2008 Addenda, Section IWE-2420(b) requires when examination results detect flaws, areas of degradation, or conditions that require an engineering evaluation in accordance with IWE-3000 or IWE-2500(d), and the component is acceptable for continued service, the areas containing such flaws, areas of degradation, or conditions shall be reexamined during the next inspection period listed in the schedule of the Inspection Program of IWE-2411, in accordance with Table IWE-2500-1, Examination Category E-C.

4. Reason for Request

In 2016 (Li1R16), an underwater inspection of 100% of the accessible areas of the suppression pool liner and downcomers was performed in accordance with the requirements of Examination Category E-A (Containment Surfaces), Item Number E1.12 (Wetted Surfaces of Submerged Areas) and Item Number E1.20 (BWR Vent System). Areas of the suppression pool liner and downcomers were found to exceed the acceptance criteria in IWE-3510. These areas were evaluated to be acceptable for continued service without repair or replacement and were subsequently categorized as Examination Category E-C

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(Containment Surfaces Requiring Augmented Examination), Item Number E4.11 (Visible Surfaces). ASME Section XI, IWE-2420(b) (Successive Inspections) requires all areas of degradation that were accepted for continued service by engineering evaluation be reexamined during the next inspection period in accordance with the Examination Category E-C requirements. The Spring 2020 (Li1R18) refueling outage is the last outage of the next inspection period, which ends on January 31, 2021.

At the current time, Exelon is reducing outage activities associated with the Limerick Generating Station (LGS), Unit 1 outage which began on Saturday March 28, 2020 in order to limit the spread of the COVID-19 virus. As discussed in this relief request, many of these activities involve close contact and a limit to social distancing. Further review has determined that close contact required to perform the suppression pool inspections would be detrimental to the occupational health and safety of the workforce and result in the potential to spread the virus. Additionally, the station may experience critical shortages of personnel due to illness which will greatly affect completion of these required inspections during the current refueling outage. These inspections require divers and a significant number of support personnel (e.g., tenders, scaffold builders, radiation protection technicians, and maintenance personnel. These maintenance personnel are utilized for phone hookups, telemetry and lighting, HEPA units, filter system hookups, and running the vacuums and hydrolazing equipment). Accordingly, Exelon is requesting approval of this relief on an expedited basis.

The United States government declared a national emergency associated with the COVID-19 outbreak on March 13, 2020. In addition, the Commonwealth of Pennsylvania, where Limerick Generating Station is located, made an Emergency Disaster Declaration on March 5, 2020 to take actions necessary to reduce exposure to the virus associated with the COVID-19 outbreak. The Centers for Disease Control (CDC) is recommending social distancing as it applies to COVID-19. The CDC defines social distancing as "remaining out of congregate settings, avoiding mass gatherings, and maintaining distance (approximately 6 feet or 2 meters) from others when possible." In the case of performing the inspections of containment surfaces at a nuclear power plant, which requires work in close spaces, this recommendation cannot be effectively implemented.

Due to the COVID-19 pandemic and in an effort to comply with CDC guidance, Exelon Generation Company, LLC (Exelon) is requesting relief associated with performing successive and augmented inspections of the suppression pool liner and downcomers during the Spring 2020 (Li1R18) refueling outage, which are required by ASME Section XI IWE-2420(b) and Examination Category E-C, Item Number E4.11. Section 5 of this relief request demonstrates that structural integrity of the suppression pool liner and downcomers will be maintained through the next refueling outage in Spring 2022 (Li1R19). The technical justification utilizes available detailed data from the last inspection (Spring 2016, Li1R16) and the corrosion rate expected for general and local area corrosion, and then compares the projected values against the structural integrity acceptance criteria for the LGS, Unit 1 suppression pool. This provides the technical justification necessary to show that the proposed alternative is acceptable, and that deferral of the suppression pool and downcomer inspections in 2020 will not result in an adverse consequence to safety.

It should be noted that the LGS, Unit 1 Updated Final Safety Analysis Report (UFSAR), Appendix A, Section A.2.1 contains a summarized description of the NUREG-1801 Chapter

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XI programs for managing the effects of aging. Item A.2.1.30, "ASME Section XI, Subsection IWE," provides an enhanced inspection program consisting of periodic inspection of the primary containment liner plate surfaces and components. This enhanced program is implemented through License Renewal Commitment No. 30 ("ASME Section XI, Subsection IWE"). No changes to this commitment are being requested in this relief request; any such changes would be processed under the 10 CFR 50.59 program.

5. **Proposed Alternative and Basis for Use**

Exelon Generation Company, LLC is requesting relief from performing the identified VT-1 examinations in the suppression pool in accordance with 10 CFR 50.55a(z)(2) on the basis that compliance results in hardship without a compensating increase in level of quality or safety during the current pandemic.

The proposed alternative is to perform the successive and augmented inspections required by IWE-2420(b) and Exam Category E-C, Item Number E4.11, on the submerged portions of the suppression pool liner and downcomers in the next refueling outage, Spring 2022 (Li1R19).

During the Spring 2016 refueling outage (Li1R16), an underwater inspection of 100% of the accessible areas of the suppression pool liner and downcomers was performed. From the review of the inspection results, the maximum depth of localized corrosion, on the liner, that was not recoated that outage was 44.7 mils. The maximum depth for general area corrosion was 44 mils for the liner. The maximum area of localized corrosion identified on any downcomer was 35 mils. All areas of localized corrosion identified as greater than or equal to 45 mils were recoated during Li1R16 refueling outage.

The corrosion of the submerged portion of the suppression pool liner was trended over several outages by the establishment of corrosion evaluation grids. Inspection of these gridded areas was performed during outages in 1996, 2004, 2012, and 2016 for LGS, Unit 1. The data obtained from these inspections suggests that the metal liner with no coating is experiencing an average general corrosion rate of approximately 1 to 2 mils per year. This measured corrosion rate is in line with the corrosion rate of 1.8 mils per year calculated by an engineering analysis for uncoated carbon steel components in the suppression pool for the LGS specific suppression pool water chemistry and operating temperature. The maximum corrosion rate experienced by any of the grid locations since a previous ASME Section XI inspection (between 2012 and 2016) was 3.6 mils per year.

Site-specific acceptance criteria were established for the Limerick suppression pool and downcomers. These criteria ensure that structural integrity of the components is maintained. The maximum allowable value before requiring a metal repair is identified as follows:

- Plate criterion - General metal loss over a large area (diameter greater than 12.5 inches) greater than 125 mils.
- Plate criterion - Localized metal loss (diameter less than or equal to 2.5 inches) greater than 187.5 mils.
- Downcomer criterion - General metal loss (diameter less than or equal to 5.5 inches in any direction) greater than 62.5 mils.

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Using the above information, a projected metal loss value can be determined for the Spring 2022 refueling outage (Li1R19). For the maximum general area plate corrosion depth remaining from Li1R16, the maximum metal loss projected would be 56 mils (44 mils + 6 years x 2 mils/year) by the start of Li1R19. This value is less than the metal repair criterion for general large area metal loss of 125 mils.

For the maximum depth of localized area remaining that was not recoated in Li1R16, the metal loss projected would be 66.3 mils (44.7 mils + 6 years x 3.6 mils/year) by the start of Li1R19. This value is less than the metal repair criterion for localized metal loss of 187.5 mils.

For the maximum depth of localized area identified on any downcomer, the maximum metal loss projected would be 56.6 mils (35 mils + 6 years x 3.6 mils/year) by the start of Li1R19. This value is less than the downcomer criterion of 62.5 mils.

Over the previous two refueling outages, Li1R17 in 2018 and Li1R16 in 2016, five (5) suction strainers were removed, and the inaccessible area behind and under the strainers was inspected and recoated. In both instances, the inspectors noted that the previously inaccessible condition was generally consistent with accessible areas of the surrounding floor/wall panels. Random local areas of corrosion, general corrosion, and tiger-striping corrosion were noted mostly on or near leak-chase channels; metal loss in areas of exposed base metal was generally less than 45 mils. Therefore, the inaccessible areas of containment are also not expected to exceed the site-specific acceptance criteria.

In summary, performing the successive inspections required by IWE-2420(b) and ASME Exam Category E-C in Spring 2022 (Li1R19) has no impact on the structural integrity of the suppression pool liner/downcomer or on plant safety. The projected depths for general and local areas of corrosion are expected to remain less than the required value to maintain structural integrity of the plates and downcomers; therefore, in the current pandemic environment, performing the required inspections would result in an increased risk of virus exposure to plant personnel and a reduction in occupational health and safety without a compensating benefit.

6. Duration of Proposed Alternative

Relief is requested from the successive and augmented inspections required by IWE-2420(b) and Exam Category E-C, Item Number E4.11 on the suppression pool liner and downcomers during the first period of the third Containment Inservice Inspection interval. The LGS third Containment Inservice Inspection (CISI) interval is effective from February 1, 2017 through January 31, 2027 for Unit 1.

7. Precedent

None