NRC Pre-Application Meeting

Clinton One-Time Extension of the Containment Type A Leak Rate Test Frequency

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Agenda

- Introduction and Opening Remarks
- Objectives
- Background
- Proposed License Amendment Request
- PRA Model Technical Adequacy
- Timeline for Submittal
- Summary

Objectives

- Brief the NRC on Exelon Generation Company, LLC's (EGC's) proposed license amendment request for a one-time extension of the Containment Type A integrated leak rate test (ILRT)
- Ensure a common understanding of the proposed change and content of the planned submittal
- Summarize the planned approach for assessing the risk impact
- Discuss timing of submittal
- Obtain NRC feedback prior to formal submittal

Background

- Clinton's current containment ILRT frequency is 15 years
  - Based on a license amendment request (LAR) that was submitted on 1/25/16, and approved by the NRC on 9/26/17 as Amendment 214
  - Amendment 214 approved the frequency specified in NEI 94-01, Revision 2-A
- Last ILRT at Clinton was completed in February 2008
- Based on the 15-year frequency, the next ILRT must be performed by February 2023
- The next Clinton refueling outage is scheduled to start in September 2021
  - Outage scope currently includes performance of the ILRT to satisfy the existing 15-year testing frequency
- Proposed LAR will justify a one-time extension of 8 months (~15.7 years total)
  - If approved, the ILRT would be performed during the fall 2023 refueling outage, which is currently scheduled to start in September 2023

Reason for One-Time Extension

- Performance of the large-scale integrated test during the fall 2021 refueling outage is contrary to COVID protocols
  - Performing the ILRT requires vendor personnel from across the United States working alongside plant personnel in close proximity for extended periods
  - Performance of the ILRT increases the overall outage duration, increasing the amount of time that supplemental workforce remains onsite
- Section 9.1 of NEI 94-01, Revision 2 discusses extensions to Type A surveillance intervals by up to 9 months
- Limitation and Condition 5 of the NRC safety evaluation (SE) for NEI 94-01, Revision 2, states:
    - The normal Type A test interval should be less than 15 years. If a licensee has to utilize the provision of Section 9.1 of NEI TR 94-01, Revision 2, related to extending the ILRT interval beyond 15 years, the licensee must demonstrate to the NRC staff that it is an unforeseen emergent condition. (Refer to SE Section 3.1.1.2).
- Section 3.1.1.2 of the NRC SE further states that extensions of the test interval beyond 15 years should be infrequent and used only for compelling reasons, and that the licensee will have to demonstrate to the NRC that an unforeseen emergent condition exists

Proposed Technical Specifications Change

5.5 Programs and Manuals (continued)

5.5.13 Primary Containment Leakage Rate Testing Program

A program shall be established to implement the leakage rate testing of the primary containment as required by 10 CFR 50.54 (o) and 10 CFR 50, Appendix J, Option B, as modified by approved exemptions. This program shall be in accordance with the guidelines contained in NEI 94-01, "Industry Guideline for Implementing Performance-Based Option of 10 CFR 50, Appendix J," Revision 3-A, dated July 2012, and the conditions and limitations specified in NEI 94-01, Revision 2-A, dated October 2008, as modified by the following ~~exception~~: (1) Bechtel Topical Report BN-TOP-1 is also an acceptable option for performance of Type A tests.

exceptions

, and (2) the next Type A test performed after the February 2008 Type A test shall be performed no later than the plant startup after the fall 2023 refueling outage

The peak calculated containment internal pressure for the design basis loss of coolant accident, P_a, is 9.0 psig.

The maximum allowable primary containment leakage rate L_a, at P_a, shall be 0.65% of primary containment air weight per day.

Proposed License Amendment

- Proposed LAR will be developed using the guidance in NRC RIS 2008-27, "Staff Position on Extension of the Containment Type A Test Interval Beyond 15 Years Under Option B of Appendix J to 10 CFR Part 50"
- Per RIS 2008-27, the LAR should demonstrate:
  - A sound technical justification and/or undue hardship or unusual difficulty
  - The requested amendment poses minimal safety risk
  - Acceptable plant-specific containment performance, including a plant-specific risk-informed analysis
  - That containment does not have a history of significant degradation issues
- Content of the proposed LAR will be similar to the LAR that was submitted on 1/25/16
  - Results from testing performed since approval of the prior LAR will be added
  - Drywell bypass leak rate test frequency will be revised under the Surveillance Frequency Control Program

Clinton Type A ILRT History

Test Date	As-Found Leakage Rate (Containment air weight %/day)	As-Left Leakage Rate (Containment air weight %/day)
January 1986 (Preoperational)	0.2930	0.3463
November 1986 (Preoperational)	0.2875	0.2933
February 1991	0.2209	0.2291
November 1993	0.2089	0.2204
February 2008	0.2708	0.226

The results of the last two Type A ILRTs for Clinton were less than the maximum allowable containment leakage rate of 0.65 weight%/day. As a result, since both tests were successful, Clinton has been placed on an extended ILRT frequency.

PRA Model Technical Adequacy

- Full Power Internal Events (FPIE) and Fire models meet RG 1.200, Rev 2
- Peer reviews performed against ASME/ANS RA-Sa-2009 Standard and RG 1.200, Rev 2
- F&O closure reviews performed in December 2018 and November 2019 (2 open FPIE findings; no open Fire findings)
  - FPIE 1-32: (Partially closed) – Post-initiator human error probabilities (HEPs) depend upon truncation level used for the dependency analysis
  - FPIE 1-34: (Open) – Potentially risk significant combinations of human failure events (HFEs) are not captured in the dependency analysis
- Neither finding impacts the proposed ILRT LAR
- Same models used for RICT/50.69 submittals currently under NRC review
  - Significant detail regarding PRA technical adequacy was provided in these two LARs (submitted 4/30/20), and the RAI response submitted on 11/24/20
  - NRC remote audit supporting review of these two license amendment requests was completed the week of 9/14/20

Plant-Specific Risk-Informed Analysis

- Risk assessment for proposed LAR will be based on 2020 PRA Model
- Risk assessment to be performed using approach similar to that in 2016 application
  - RG 1.200 – use of PRA as applied to ILRT Interval Extension
  - RG 1.174 – acceptance criteria
  - Guidance from NEI 94-01 "Industry Guideline for Implementing Performance-Based Option of 10 CFR Part 50, Appendix J“ Rev 3-A
  - Methodology of EPRI Report No. 1009325 "Risk Impact Assessment of Extended Integrated Leak Rate Testing Intervals“ Rev 2-A
  - Methodology of Calvert Cliffs Nuclear Power Plant to estimate likelihood and risk implications of corrosion-induced leakage of steel liners undetected during extended test interval
- Unlike 2016 LAR, proposed risk assessment will use 15-year interval as baseline
  - Represents current, approved interval
  - Consistent with baseline supporting Amendment 353 for DC Cook, Unit 1, Regarding One Cycle Extension of Appendix J, Type A, Integrated Leakage Rate Test Interval, dated 9/3/20

Timeline for Submittal

- Planned submittal of license amendment request to the NRC – March 2021
- Next CPS refueling outage begins September 2021
  - Any changes to the schedule will be communicated to the NRR Project Manager
- Requested approval date will be approximately 4 months after submittal (i.e., July 2021)

Summary

- Proposed LAR extends the existing 15-year ILRT frequency by approximately eight months
- LAR will follow the guidance in NRC RIS 2008-27
- Incorporate lessons learned from previous submittals
- PRA models meet Regulatory Guide 1.200, Rev 2

Questions / Feedback