PSEG/NRC Pre-Submittal Meeting

Salem Pressurizer Weld Interval Extension Request for Alternative

July 20, 2020

PSEG
Nuclear LLC

Agenda

- Overview of Request
- Affected Components
- Proposed Alternative
- Basis for Request
- Technical Justification
- Applicability & Inspection History
- Proposed Schedule

Overview of Relief Request

PSEG will be requesting approval of a Request for Alternative in accordance with 10 CFR 50.55a(z)(1) to increase the inspection interval for pressurizer shell-to-head welds for Salem Units 1 & 2

Affected Components

- **Pressurizer , ASME Class 1, Category B-B, "Pressure-retaining welds in vessels other than reactor vessels"**

ASME Category	Item No.	Description
B-B	B2.11	Pressurizer, shell-to-head welds, circumferential
B-B	B2.12	Pressurizer, shell-to-head welds, longitudinal

Proposed Alternative

- PSEG proposes to increase the inspection interval for the pressurizer shell-to-head welds from 10 to 30 years for the remainder of the fourth interval and through the fifth 10-year inspection interval (currently scheduled to end on December 31, 2030)

Basis for Request

- **EPRI Report 3002015905, *Technical Bases for Inspection Requirements for PWR Pressurizer Head, Shell-to-Head and Nozzle-to-Vessel Welds***
  - This report is applicable to ASME Categories B-B and B-D
  - This report is publicly available for download at www.epri.com

Technical Justification

- The EPRI Report provides the following technical justifications that support PSEG's Request for Alternative:
  - Industry examination history and previous similar industry initiatives have optimized examination requirements for similar components
  - The report contains a Degradation Mechanism Evaluation specific to the welds included in PSEG's request
  - The report contains Probabilistic Fracture Mechanics (PFM) and Deterministic Fracture Mechanics evaluations specific to the welds included in PSEG's request
    - The PFM evaluations are consistent with the PFM guidance EPRI provided to the NRC
  - The report provides results for the welds included in PSEG's request that conclude that no other inspections are required before 80 years of operation to satisfy the NRC safety goal of 10^{-6} failures per reactor year
  - The report demonstrates that the welds included in PSEG's request are very flaw-tolerant

Applicability and Inspection History

- PSEG's Request is limited to ASME Category B-B welds
  - These welds represent the upper and lower head circumferential and longitudinal shell welds; no nozzle welds are included in the Request because the nozzles are integrally cast
- PSEG's Request will demonstrate that plant specific configurations and operating conditions are bounded by the criteria used in the EPRI report
- PSEG's Request will supplement the EPRI report with Salem-specific evaluation for weld coverage because prior inspections at Salem had less coverage than the minimum coverage assumed in the EPRI report (as low as 37% for some welds at Salem vs. 50% assumed in the EPRI report)
  - Leakage criteria satisfied for 77 years of operation and rupture criteria below acceptance criteria for 80 years of operation

Applicability and Inspection History

- PSEG's Request includes a summary of the Salem inspection history for the subject welds
  - No flaws were detected in any of the prior examinations for these welds that exceeded the ASME Section XI acceptance standards
- Conclusion of PSEG's Request: ASME Section XI inspection schedules can be optimized (to at least 30 years) without compromising safety

Proposed Schedule

- PSEG currently intends to submit the Request for Alternative before the end of August 2020
- PSEG will request NRC approval no later than August 31, 2021 to support implementation prior to the Fall 2021 outage for Salem Unit 2

Questions?