

The background of the slide is an aerial photograph of a city and a river at dusk. The sky is a deep blue with some light clouds. The river is a vibrant blue, winding through the city. The city buildings are lit up, and a highway with traffic is visible in the foreground. The overall scene is a mix of urban and natural elements.

**License Amendment Request to Revise Sequoyah Operating  
License to Use Fire PRA and Seismic PRA Models for 10 CFR  
50.69 Risk-Informed Categorizations**

November 8, 2021

# Agenda

- Describe upcoming license amendment request (LAR)
  - Scope of the Request
  - PRA Technical Acceptability
- LAR Schedule
- Summary
- Questions/Comments?

## Scope of the Request

- LAR revises the existing 10 CFR 50.69 License Condition
  - To allow use of a fire PRA (FPRA) to replace use of the fire Safe Shutdown Equipment List in paragraph (1).
  - To allow use of a seismic PRA (SPRA) to replace use of a seismic margin analysis to evaluate seismic risk in paragraph (1).
  - Replaces examples of changes to the categorization process requiring prior NRC approval in paragraph (3).

# Scope of the Request

- (1) TVA is approved to implement 10 CFR 50.69 using the processes for categorization of Risk Informed Safety Class (RISC)-1, RISC-2, RISC-3, and RISC-4 structures, systems, and components (SSCs) using: Probabilistic Risk Assessment (PRA) model to evaluate risk associated with internal events, including internal flooding; using the fire safe shutdown equipment list in the SQN Fire Protection Report referenced in the Updated Final Safety Analysis Report to evaluate internal fire events; the NUMARC 96-01 shutdown safety assessment process to assess shutdown risk; the Arkansas Nuclear One, Unit 2 (ANO-2) passive categorization method to assess passive component risk for Class 2 and Class 3 SSCs and their associated supports; and the results of non PRA evaluations that are based on the IPEEE Screening Assessment for External Hazards, i.e., seismic margin analysis (SMA) to evaluate seismic risk, and a screening of other external hazards updated using the criteria in the endorsed ASME/ANS RA-Sa-2009 PRA Standard for other external hazard screening significance; as specified in Unit 1 License Amendment 346.

a fire PRA; a seismic PRA

(as revised by License Amendment \_\_\_)

# Scope of the Request

- (2) Prior to implementation of the provisions of 10CFR 50.69, TVA shall complete the items below;
  - a. Items listed in Enclosure 1, Attachment 1, "SQN 10 CFR 50.69 PRA Implementation Items," in TVA letter CNL-19-002, "Response to Request for Additional Information Regarding Application to Modify Sequoyah Nuclear Plant Units 1 and 2, Application to Adopt 10 CFR 50.69, "Risk-informed Categorization and Treatment of Structures, Systems, and Components for Nuclear Power Reactors, (SQN-TS-17-06)(EPID: L-2018-LLA-0066)," dated March 21, 2019.
- (3) Prior NRC approval, under 10 CFR 50.90, is required for a change to the categorization process specified above (e.g., change from ~~a seismic margins approach to a seismic probabilistic risk assessment approach, change from alternative method for internal fire to a fire probabilistic risk assessment approach~~).

the NUMARC 96-01 shutdown safety assessment process to assess shutdown risk to a shutdown PRA approach

# PRA Technical Acceptability

## Fire

- ASME/ANS RA-Sa-2009 (Part 4), RG 1.200 peer reviewed
- Appendix X of NEI 05-04, 07-12, and 12-13 finding closure review
- No open Fire PRA F&Os

Note – The FPRA is currently under audit with the Sequoyah TSTF-505 LAR so there may be some opportunities for review synergy.

# **PRA Technical Acceptability (continued)**

## Seismic

- ASME/ANS RA-Sb–2013 (Part 5), RG 1.200 peer reviewed
- Appendix X of NEI 05-04, 07-12, and 12-13 finding closure review
- No open Seismic PRA F&Os

Note – The SPRA is currently under audit with the Sequoyah TSTF-505 LAR so there may be some opportunities for review synergy.

## Schedule

- Projected submittal in December 2021 with a requested approval within one year
- A 90-day implementation period is proposed



## Summary

- Sequoyah LAR to allow use of FPRA and SPRA for 10 CFR 50.69 risk-informed categorizations scheduled to be submitted in December 2021 with approval requested in one year
- FPRA and SPRA are technically acceptable for use in 10 CFR 50.69 risk-informed categorizations

# Questions/ Comments



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**TVA**

**TENNESSEE  
VALLEY  
AUTHORITY**