



POWERFUL
SOLUTIONS

10 CFR 50.69 and TSTF-505 License Amendment Requests NRC Pre-Submittal Meeting

Agenda

- Introductions and Opening Remarks
- 10 CFR 50.69 License Amendment Request Overview
- TSTF-505 License Amendment Request Overview
- Closing Remarks
- Current Schedule

Introductions and Opening Remarks

- Introductions
 - Nuclear Regulatory Commission
 - Columbia Generating Station
 - Enercon Services, Inc.

- Opening Remarks

- Purpose of Pre-Submittal Meeting

10 CFR 50.69 Overview

- Provides a graded approach to SSC treatments
- Categorizes SSCs using a risk-informed process and adjusts treatment requirements consistent with the relative significance of the SSC
- For equipment determined to be of high safety significance, requirements will not be changed or will be evaluated for enhanced treatment

10 CFR 50.69 LAR Overview

- Requested Change to Operating License

“Energy Northwest 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) models to evaluate risk associated with internal events, including internal flooding, internal fire, and seismic risk; the shutdown safety assessment process to assess shutdown risk; the Arkansas Nuclear One, Unit 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 a screening of other external hazards updated using the external hazard screening significance process identified in ASME/ANS PRA Standard RA-Sa-2009; as specified in License Amendment No. [XXX] dated [DATE].”

10 CFR 50.69 LAR Overview

■ SSC Categorization

- Follows NEI 00-04 without exceptions
 - PRA-based evaluations utilizing internal events, internal flooding, fire, and seismic PRAs
 - Non-PRA approaches such as external events screening and shutdown assessment
 - Seven qualitative criteria of NEI 00-04
 - Defense-in-depth assessments
 - Passive categorization using ANO RI-RRA Methodology
- Performed by an independent decision-making panel

10 CFR 50.69 LAR Overview

■ External Hazards

- Screened in accordance with GL 88-20, Supplement 4, and using criteria in ASME PRA Standard RA-Sa-2009, NUREG/CR-2300 and NUREG-1407
 - PRA models were developed for internal flooding, internal fire, and seismic activity
- Future identification of unscreened hazards will follow NEI 00-04
 - Station modifications
 - Industry operating experience
 - PRA model error or limitation

10 CFR 50.69 LAR Overview

- Shutdown Risk follows process illustrated in NEI 00-04
- Integration of importance measures across all hazards performed manually using NEI 00-04
- LAR addresses use of Regulatory Guide (RG) 1.200, Revisions 2 and 3
 - RG 1.200, Revision 2 – Internal Events, Seismic PRA
 - RG 1.200, Revision 3 – Fire PRA

10 CFR 50.69 LAR Overview

- PRA Technical Adequacy – Internal Events (with Internal Flooding) PRA Model
 - Full Scope Peer Review using RG 1.200, Revision 2
 - Reviewed by NRC for SFCP and ILRT
 - Focused Scope Peer Review for Model Upgrade
 - Human Failure Events methodology was re-evaluated
 - Changes in Dependency Analysis
 - F&O closure using Appendix X to NEI 05-04
 - No open Finding-Level F&Os

10 CFR 50.69 LAR Overview

- PRA Technical Adequacy – Seismic PRA Model
 - Seismic PRA rev 8.1 evaluated during Staff Review of NTTF Recommendation 2.1
 - Full Scope Peer Review using RG 1.200, Revision 2
 - Focused Scope Peer Review of Model Upgrade
 - Recalculated fragilities using scaling approach
 - Additional Focused Scope Peer Review of Model Upgrade
 - Secondary Containment effectiveness model of Reactor Water Clean-Up line break to support a seismic PRA LERF reduction
 - F&O closure using NEI 12-13
 - No open Finding-Level F&Os

10 CFR 50.69 LAR Overview

- PRA Technical Adequacy – Fire PRA Model
 - Full Scope Peer Review using RG 1.200, Revision 3
 - F&O Closure using NEI 17-07, Revision 2
 - No open Finding-Level F&Os

10 CFR 50.69 LAR Overview

- FLEX Strategies are credited in the Internal Events, Fire, and Seismic PRA Models
 - Battery Chargers
 - Hardened Containment Vent System
 - Low Pressure RPV Injection

10 CFR 50.69 LAR Overview

- Uncertainty Evaluations within PRA Models
 - Process defined in NEI 00-04
 - Uncertainty in PRA Models reviewed using NUREG-1855, EPRI TR-1026511, and EPRI TR-1016737

- PRA Maintenance
 - Regularly scheduled updates will occur at least once every two refueling outages
 - Unscheduled updates will be performed as necessary (e.g., +/-25% CDF or LERF for modeled hazard)
 - SSC categorization re-evaluation during model updates

TSTF-505 Overview

- Applies PRA to establish RICTs for LCO actions when PRA and TS functions are preserved
- Uses same PRA models and PRA maintenance process as described in the 10 CFR 50.69 LAR
- Application of the RICT is limited to a maximum of 30 days (termed the "backstop")

TSTF-505 LAR Overview

- The RICT Program provides the necessary administrative controls to permit extension of CTs
- Delays reactor shutdown or Required Actions while preserving sufficient safety margins and defense in depth
- RICT program integrated into conduct of operations ensuring risk is assessed and managed

TSTF-505 LAR Overview

- Consistent with TSTF-505, Revision 2, and NEI 06-09-A
- Total CDF and LERF meet RG 1.174 guidelines
- RICT will apply to MODES 1 and 2
- 23 TS impacted by the proposed change

TSTF-505 LAR Overview

- Approval of TSTF-439 is expected prior to the submittal of TSTF-505
- TS 5.5.16, RICT Program (new program in TS)
 - PRA is based on the as-built, as-operated, and maintained plant; and reflects the operating experience at the plant, per RG 1.200, Revision 2
 - Plant configuration changes and overall program managed in accordance with NEI 06-09-A
 - Provides guidance on determining RICT for emergent conditions

TSTF-505 LAR Overview

- Variations from TSTF-505, Revision 2:
 - CGS is a BWR 5 resulting in administrative differences from the TSTF based on BWR 4 (NUREG-1433) and BWR 6 (NUREG-1434) standard TS;
 - Plant specific LCOs are identified and justification for applying RICT is provided
 - Cleanup of expired one-time notes included in LAR
- Minimal Variances do not impact TSTF-505 applicability

TSTF-505 LAR Overview

- Example TS Variation – TS 3.3.8.1 – Loss of Power (LOP) Instrumentation
 - Condition B is plant specific
 - Required Action B.2 – Restore channel to OPERABLE status, 24-hour Completion Time (CT) front stop
 - For SSCs are modeled consistent with the TS scope, unavailability included in CRM tool for the RICT program
 - For unmodeled undervoltage relays, loss of time delay relays used as a conservative surrogate that fails the channel
 - RICT is consistent with TSTF-505 changes

Closing Remarks

- 10 CFR 50.69 LAR
 - Utilizes industry template and industry peer review of LAR
 - PRA Models, external hazards screening and categorization methods in accordance with relevant guidance and standards
 - No open finding level F&Os

- TSTF-505 LAR
 - Utilizes TSTF template and developed using industry OE
 - Justification for RICTs requested for plant specific TS
 - PRA Models and supporting information in accordance with relevant guidance and standards
 - No open finding level F&Os

Current Schedule

- 10 CFR 50.69 LAR
 - Submittal 1st half of November 2021

- TSTF-505 LAR
 - Submittal 2nd half of November 2021

- Common PRA models – robust & technically adequate
 - Stand-alone LARs submitted in close succession allowing for streamlined review