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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

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Introductions and Opening Remarks

- Introductions
  - Nuclear Regulatory Commission
  - Columbia Generating Station
  - Enercon Services, Inc.
- Opening Remarks
- Purpose of Pre-Submittal Meeting

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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

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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]."

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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

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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

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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

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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

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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

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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

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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

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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")

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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

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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

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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

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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

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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

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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

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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

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