



10 CFR 50.69

License Amendment Request Pre-Submittal Meeting with NRC

December 14, 2017

Purpose of Meeting

- Background
 - Recognize NRC/Industry Efforts
 - Recent Operating Experience
- Overview of TVA's efforts to adopt 10 CFR 50.69 for Sequoyah Nuclear Plants (SQN)
 - Risk Characterization
 - License Amendment Request
 - Project Status

10 CFR 50.69 Overview

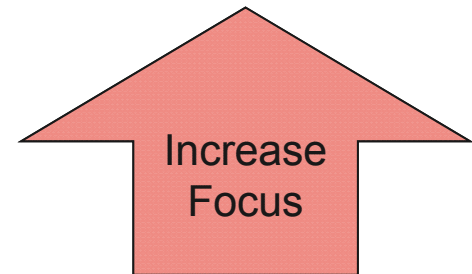
Provide Flexibility to Reduce Cost and Improve Plant Operations & Safety Margins

It has the potential to provide the industry substantial cost savings and drive the goals of the *Delivering the Nuclear Promise* Initiative

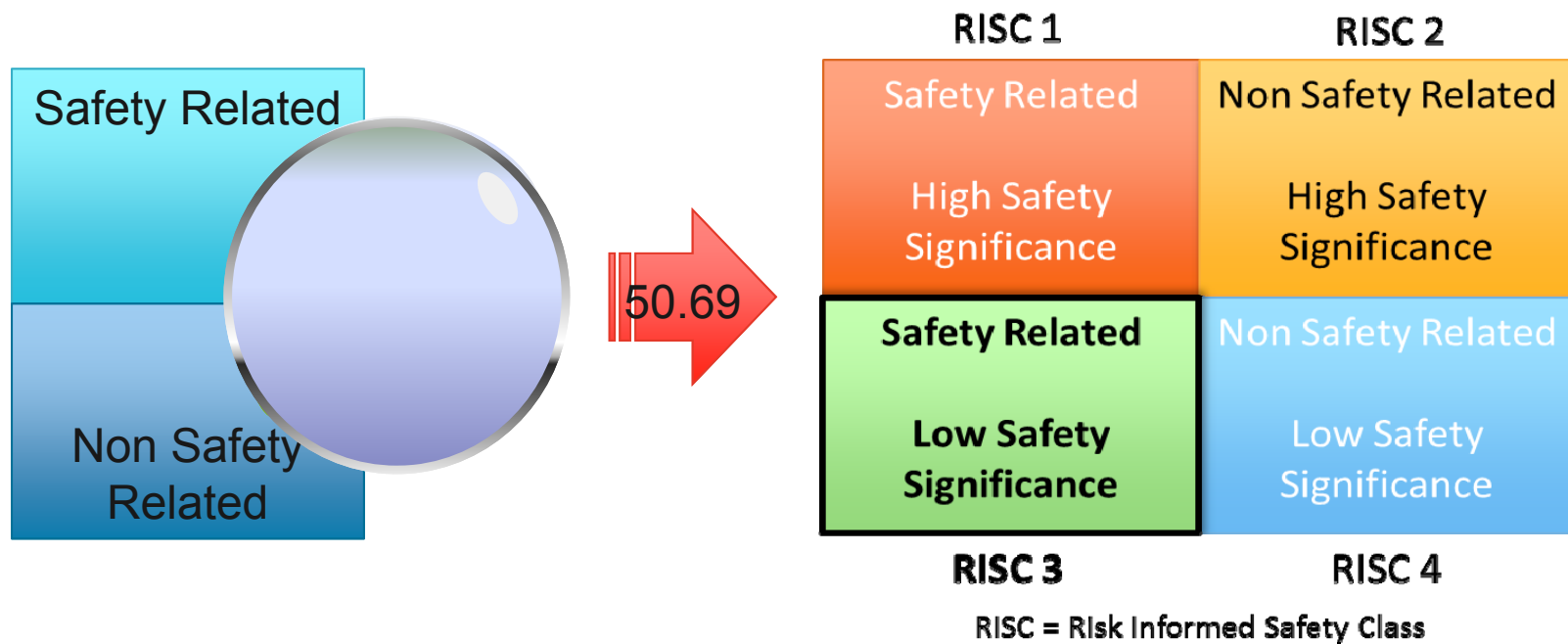


High Safety
Significant
Areas

Low Safety
Significant
Areas



Overview - Categorization



Overview – Exempted Special Treatment Requirements

Low Safety Significant Components can be scoped out of these regulations

Local Leak Rate Testing [10 CFR 50 Appendix J]	Quality Requirements [10 CFR 50 Appendix B]	In-service Inspection [10 CFR 50.55a(g)]	ASME XI repair & replacements, applicable portions, with limitations [10 CFR 50.55a(g)]
Maintenance Rule [10 CFR 50.65]	In-service Testing [10 CFR 50.55a(f)]	Environmental Qualification [10 CFR 50.49]	Event Reporting [10 CFR 50.55(e)]
Seismic Qualification [Portions of Appendix A to 10 CFR Part 100]	Deficiency Reporting [10 CFR Part 21]	Applicable Portions of IEEE standards [10 CFR 50.55a(h)]	Notification Requirements [10 CFR 50.72, 50.73]

NRC/Industry Efforts

- NEI 00-04, 10 CFR 50.69 SSC Categorization Guideline as endorsed in RG 1.201
- Delivering the Nuclear Promise Efficiency Bulletins (EB)
 - 17-09 Industrywide Coordinated Licensing of 10 CFR 50.69
 - 17-16 Industry Coordination of Categorization and Alternative Treatments for 10 CFR 50.69 Implementation Plans
- LAR Coordinating Committee (EB 17-09)
 - Peer review prior to submittal
 - Comments resolved prior to submittal
 - LAR template refinements with each review

SQN Risk Characterization

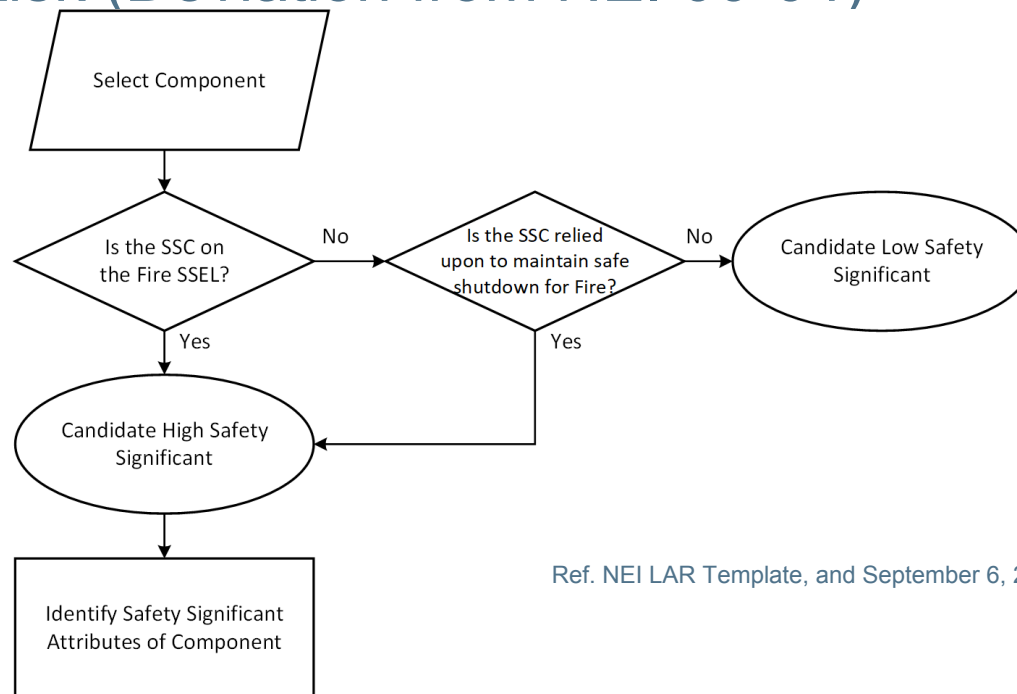
- Internal Events (With Internal Flooding)
 - Full Scope Peer Review performed against ASME/ANS RA-Sa-2009, as endorsed by RG 1.200 Revision 2
 - PRA model technical adequacy has been previously evaluated by the Staff for TSTF-425 and TSTF-446
 - PRA model has been updated three times since the RG 1.200 Rev. 2 peer review
 - Changes to the as-built, as-operated plant are reviewed continuously to determine if model impacts require an off-cycle update
 - Facts & Observations (F&O) closure peer review performed after the Staff's endorsement of the process and in accordance with the NEI 05-04 Appendix X approach
 - Peer Review of F&O findings determined all findings have met closure requirements and do not constitute the criteria for an upgrade
 - Sensitivity studies will be performed in accordance with NEI 00-04 for areas such as Human Reliability Analysis (HRA) and Common Cause Failures (CCF)

SQN Risk Characterization - cont.

- Fire Risk (Deviation from NEI 00-04)
 - NEI 00-04 provides two options: 1) Fire PRA, 2) System, Structure or Component (SSC) list developed from the IPEEE Fire Induced Vulnerability Evaluation (FIVE)
 - TVA proposes using the Appendix R Safe Shutdown Equipment List (SSEL)
 - Similar to the NEI 00-04 Seismic Hazard (SSEL) approach
 - Appendix R is a living program subjected to periodic regulatory inspection
 - SSC candidate safety-significance determined by the Fire SSEL
 - Includes SSCs credited for mitigation of Multiple Spurious Operations (MSOs) and any deviations/exemptions taken from the fire protection program
 - Proposed approach is conservative compared to the FIVE approach because it does not use a successive screening methodology

SQN Risk Characterization – cont.

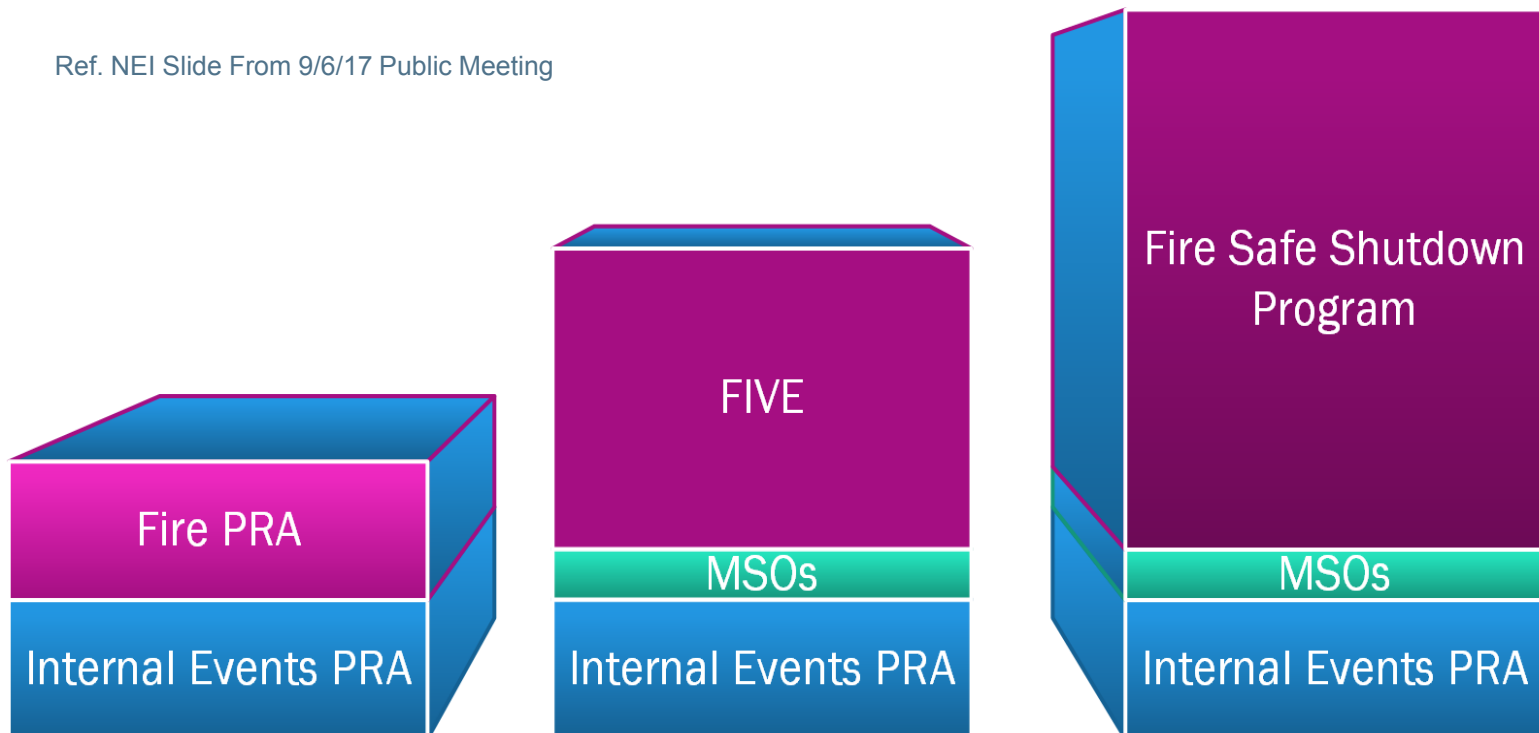
- Fire Risk (Deviation from NEI 00-04)



Ref. NEI LAR Template, and September 6, 2017 Public Meeting

SQN Risk Characterization – cont.

Ref. NEI Slide From 9/6/17 Public Meeting



SQN Risk Characterization – cont.

- Seismic Risk
 - Seismic Margins Analysis (SMA) performed for the IPEEE
 - SSEL developed from the SMA
 - SSEL has been reviewed against the current as-built, as-operated plant
 - If the SSC is on the list, it is candidate safety-significant
- Other External Hazards
 - Screening performed in support of the IPEEE based on the requirements of NUREG-1407
 - SSCs credited in the screening of an external hazard are considered candidate safety-significant
 - Updated against the current as-built, as-operated plant

SQN Risk Characterization – cont.

- Shutdown Risk
 - Based on the NUMARC 91-06 Key Safety Functions (KSFs)
 - A running and alternative system/train for the KSFs is designated
 - SSCs that support the primary and alternative methods to satisfy KSFs are candidate safety-significant
 - If SSC failure would initiate a shutdown event (e.g., loss of Decay Heat Removal), the component is safety-significant

SQN Risk Characterization - Summary

Risk Source	Approach	Scope of Safety-Significant SSCs
Internal Events w/Internal Flooding	PRA Model	Per PRA Risk Ranking (CDF & LERF)
Internal Fire Hazards	Appendix R Safe-Shutdown Equipment List (Deviation from NEI 00-04)	All SSCs Identified to Maintain Low Risk due to Internal Fires
Seismic Hazards	IPEEE SMA Seismic Shutdown Equipment List	All SSCs Identified to Maintain Low Risk due to Seismic Events
High Winds, External Floods, etc.	IPEEE Screening Approach	All SSCs Required to Protect Against Each Hazard
Shutdown	Shutdown Safety Plan	All SSCs Required to Support Shutdown Safety Plan

Summary

- TVA's risk characterization process follows NEI 00-04 with one exception: the determination of candidate safety-significance of SSCs for internal fire hazards.
- The PRA represents the current as-built, as-operated plant.
- Treatment of other hazards (non-PRA modeled) represent the as-built, as-operated plant.

SQN License Amendment Request

- Add the following License Condition:
 - 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) specified in the license amendment dated [XXXX].
 - Prior NRC approval, under 10 CFR 50.90, is required for a change to the categorization process specified above.
 - TVA shall complete the items listed in Attachment 1, List of Categorization Prerequisites, of TVA letter dated [XXXX], prior to implementation.

SQN License Amendment Request

- LAR follows the EB 17-09 Template
- One deviation from the NEI 00-04 process (Fire)
- PRA Models include Internal Hazards and Internal Flooding (RG 1.200 Rev. 2, Full Scope)
- PRA Technical Adequacy previously reviewed in the TSTF-425 and TSTF-446 applications
- No remaining open F&O findings



SQN Categorization Project

- A project has been established to perform an initial system categorization feasibility study using the current draft industry guidance

SQN LAR – Timeline

- 12/8/17 - Draft LAR reviewed by Industry Coordinating Committee
- 12/14/17 - Pre-submittal Meeting with the NRC
- 12/18/17 - SQN PORC reviews LAR
- 12/22/17 - LAR is ready to submit

