

Calvert Cliffs/NRC Pre-Submittal Meeting Risk Informed Completion Times

TSTF-505 License Amendment Request

November 5, 2015



Agenda

- Introduction
- License Amendment Request
- PRA Models and CRMP Summary
- Implementation
- Next Steps
- Closing Remarks

Desired Meeting Outcomes

- Discuss license amendment content
- Identify variances from TSTF-505
- Provide overview of Configuration Risk and PRA models
- Discuss NFPA 805 and associated modifications
- Confirm level of specificity (e.g., functionality) in LAR
- Validate timeline for December 2015 submittal

License Amendment Request



CCNPP LAR Content

Based on TSTF-505 and NEI 06-09

- 27 LCOs
- Modes 1 and 2 only
- New TS Section 5.5 Program
- Variances from TSTF-505
 - RICT added to LCOs not in TSTF-505
 - Other variances

CCNPP TS 3.7.3, Auxiliary Feedwater (AFW) System

- Conditions not in TSTF-505 or NUREG-1432 (CEOG ITS)
 - CCNPP TS 3.7.3.B - One motor-driven AFW pump inoperable
 - CCNPP TS 3.7.3.C - Two AFW pumps inoperable
 - Note: CCNPP AFW is a two-train system
- AFW is modeled in PRA
- RICT added to each respective Required Action
 - Consistent with similar TSTF-505 changes

CCNPP TS 3.7.6, Service Water (SRW) System

- Condition not in TSTF-505 or NUREG-1432
 - CCNPP TS 3.7.6.A - One SRW heat exchanger inoperable
- SRW is modeled in PRA
- RICT added to Required Action
 - Consistent with similar TSTF-505 changes

CCNPP TS 3.7.15, Main Feedwater Isolation Valves

- LCO/Condition not in TSTF-505 but is in NUREG-1432
 - CCNPP TS 3.7.15.A – One or more MFIVs inoperable
 - Already includes restoration action
- MFIVs modeled in PRA
- RICT added to existing Required Action
 - Consistent with similar TSTF-505 changes

Other Variances

- TSTF-505 LCOs/Conditions that CCNPP TS currently do not have will not be adopted
- New Required Actions with 1 hour CT or the option to use RICT
 - Consistent with TSTF-505
- Subtle differences in Condition/RA wording
- Typed TS pages not included

Additional Activities

- Participating in NEI TSTF-505 Industry Task Force
- Monitoring TSTF-505 RAIs from other applicants
- Addressing TSTF-505 issues raised by NRC
 - PRA Functionality and Loss of Function
 - Detailed Risk Management Actions
 - Maintaining safety margin

PRA Models and Configuration Risk Management Program (CRMP)

Internal Events PRA

- Peer review by PWROG conducted in June 2010
- Performed against requirements in PRA Standard Parts 2 (Internal Events) and 3 (Internal Flooding)
- 97% of Supporting Requirements meet PRA Standard Capability Category II
 - Majority of peer review findings related to documentation
 - Findings addressed in latest internal events PRA model update
 - No significant impact on CDF or LERF
 - Supporting Requirements met at Capability Category II after resolution of findings

Internal Fire PRA

- Peer review by PWROG conducted in January 2012
- Performed against requirements in PRA Standard Part 4 (Internal Fire) and RG 1.200, R2 following NEI 07-09 peer review process
- Supporting Requirements judged to meet Capability Category II with limited exceptions:
 - All findings dispositioned as part of NFPA-805 submittal process
 - Supporting Requirements met at Capability Category II after resolution of findings

Seismic Risk

- No Current CCNPP Seismic PRA
- Current hazard (EPRI 2013) lower than IPEEE
 - Seismic risk estimated using NRC approach for GSI-199
 - Same as Vogtle TSTF-505 submittal approach
 - Plant level HCLPF SSC based on IPEEE and CCNPP EDG AOT
- Seismic penalty will be applied to all RICTs

High Wind Risk

- Peer-reviewed high wind PRA model not available
- CCNPP Wind/Tornado Methodology
 - Site walk-down to identify vulnerable SSCs for safe shutdown
 - Tornado strike frequency based on NUREG/CR-4661, Rev. 2
 - Point and line strike model applied for tornadoes of all strengths
 - Assumes off-site power and any SSC failures are non-recoverable
- Calculate a bounding risk based on the highest value, for cases not already limited by front-stop
- High wind risk penalty will be applied to all RICTs

RICT CRMP Model

- Real time risk model as currently used for existing Technical Specification CRM
- Uses PARAGON software
- Incorporates RICT/RMAT calculation, tracking, and trending features
- Handles multiple overlapping configurations
- Developed with operator input

Plant Modifications

- Fire PRA models rely on installation of modifications
- RICT Program not implemented until modifications complete
- Most Unit 1 modifications scheduled for implementation in 2016; Unit 2 in 2017

Summary of PRA Models

- PRA models developed and peer-reviewed
 - Internal events
 - Internal fire
- Updated screening for RG 1.200, Rev. 2 hazards
 - Only seismic and high wind not screened
- Total CDF/LERF meet RG 1.174, Rev. 2 criteria

Implementation Plan

Implementation

- Operations coordinates RICT implementation
- Cross-functional team supporting implementation
- RICT implemented in Modes 1 and 2 only
- CRMP tool and PRA Models updated to support RICT
- Procedure changes, training, and qualifications
- Site-wide Communications, Leader Alignment Meetings, and Department All Hands Meetings

Procedures and Training

- Procedures
 - Revised to address risk management action times, PRA functionality, and incremental risk tracking
 - New RICT Program Procedure
- Level 1 Training
 - Hands-on (detailed) training for Operators and Work Management
 - Classroom training to address how RICT impacts Station Operations
 - Integrated with current online processes
- Level 2 Training
 - Support training for managers on process, expectations, limitations
- Level 3 Training
 - Awareness training for all others

Next Steps

- Submit the LAR by December 2015
- Develop procedures, refine software and conduct training in parallel with NRC review in 2016
- Ready to implement in 2017
- Pilot lessons for fleet application

Closing Remarks

