



Hatch Pre-Submittal Meeting for TSTF-505 Revision 2

August 16, 2021





Meeting Agenda

- Introductions
- PRA Models and Configuration Risk Model Overview
- License Amendment Request Overview



PRA Models and Configuration Risk Model Overview



Overview of PRA Portion of HNP TSTF-505 LAR

- PRA Acceptability
 - Total core damage frequency (CDF) and large early release frequency (LERF) meet regulatory guide (RG) 1.174 criteria
 - PRA Models found acceptable for 50.69, NFPA-805, and TSTF-425 submittals
 - PRA models are periodically updated to reflect plant changes and updated data
 - Uncertainty analysis performed per NUREG-1855 Rev 1.
 - PRA models are peer-reviewed and F&O Closure was independently validated
- Hazards include Internal Events, Internal Flooding and Fire
 - Seismic: Penalty applied for CDF and LERF (detailed in Enclosure 4 to LAR)
 - Other External Hazards screened per the standard
 - High Winds: losses of offsite power (LOOPs) included in internal event (IE) PRA (Other High Wind effects screened)
- Unit-specific PRAs will be used for application
 - Sample RICT calculations to be presented in LAR are for Unit 2 configurations.
 - A sample of Unit 1 configurations will also have RICTs calculated, to demonstrate the similarity between unit results.



Internal Events / Internal Flood PRA

- November 2009 - HNP IE and internal flooding (IF) PRA model was subject to a full-scope peer review against RG 1.200 Rev. 2 utilizing guidance in NEI-05-04.
- IE and IF open findings were reviewed; all but 2 IE and 2 IF closed in April 2017 for the IE and IF PRA models using the process documented in Appendix X to NEI 05-04, NEI 07-12, and NEI 12-13, “Close-out of Facts and Observations” (F&Os) as accepted by NRC (ML17079A427).
- Two IF findings required a focused scope peer review, performed in October 2019 and findings closed.
- There are two remaining open IE findings related to documentation. Corrective actions for those have been performed and all applicable supporting requirements are met at capability category II.
- IE and IF peer review and finding closures examined by NRC during 50.69 submittal review (see document ML20077J704).



Fire PRA

- May 2016 - HNP Fire PRA was subject to full-scope peer review against RG 1.200 Rev. 2 utilizing guidance in NEI 07-12.
- Findings were reviewed and closed in October 2017 for the Fire PRA models using the process documented in Appendix X to NEI 05-04, NEI 07-12, and NEI 12-13.
- There are no open findings, and all applicable supporting requirements are met to at least capability category II.
- SNC will use as-built Fire PRA, and will only credit implemented NFPA-805 modifications.
- Fire PRA peer review and finding closeout reviewed during HNP NFPA-805 submittal review (see document ML20066F592).



RICT Program Configuration Risk Model

- RICT will use Configuration Risk Model as currently used for existing Maintenance Rule a(4) Configuration Risk Management Program (CRMP)
 - Uses PHOENIX Risk Analysis Software. Operations and Work management familiar with software, and it is integrated with clearance and work scheduling software.
 - Incorporates RICT calculation features. PHOENIX used for example RICT calculations in submittal.
 - Utilizes single fault tree, all hazard model, re-quantified for each configuration.
 - One-Top model has been validated to produce identical results to individual hazards. One-top model is used for all HNP risk-informed applications.



License Amendment Request



LAR Discussion

- Based on TSTF-505 Revision 2 and NEI 06-09
- RICTs apply in Mode 1 only, consistent with PRA model
- Only PRA modeled features (or appropriate surrogate) have RICT proposed
- No Loss of Function RICTs proposed
- Additional administrative (clean-up) items included in LAR
- Variations and administrative items discussed on upcoming slides



Administrative Changes

- Remove one-time, temporary changes to Unit 2 TS 3.5.1, ECCS – Operating and Unit 1 and Unit 2 TS 3.8.1, AC Sources – Operating
 - These were one-time allowances to extend the CTs, and are no longer applicable
- Remove page 3.4-25 from both Unit 1 and Unit 2 TS
 - Page is a duplicate of page 3.4-22 reflecting LCO 3.4.10
- Revise title of LCO 3.3.2.2 “Feedwater and Main Turbine Trip High Water Level Instrumentation,” by moving “Trip” to after “Level.” Also add “high water level” to LCO statement
 - This phrasing will establish consistency with phrasing in the Actions, Surveillance Note, and Bases
 - Change is also consistent with NUREG-1433 phrasing



Variations

- HNP RHR Drywell Spray TS not included in NUREG-1433, and therefore was not included in TSTF-505
 - Industry precedence (Peach Bottom) exists for including a RICT to one inoperable RHR Drywell Spray subsystem
- Re-typed (Clean) TS Pages not included
- SNC proposing to include sample RICTs only for TS 3.8 Required Actions
 - TSTF-505 requires identification of risk managed actions (RMAs) for evaluation of electrical power systems; sample RICTs would be included with RMAs
 - SNC not aware of a requirement to include identification of RMAs or sample RICTs to other TSs



Variations (continued)

- TS 3.3.6.1, 3.6.1.3, and 3.8.1 are re-formatted to maintain only “first level” logical connectors in Completion Times.
- Maintains consistency with TS 1.2 requirements for “nesting”.
- Revised format maintains intent of existing TS.
- For example:

Current TS 3.3.6.1 Condition A:

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required channels inoperable.	A.1 Place channel in trip.	12 hours for Functions 2.a, 2.b, 6.b, 7.a, and 7.b <u>AND</u> 24 hours for Functions other than Functions 2.a, 2.b, 6.b, 7.a, and 7.b

Variations (continued)

- Same intent as existing 3.3.6.1 Condition A (i.e. 12 hour CT for Functions 2.a, 2.b, 6.b, 7.a, and 7.b; 24 hour CT for all other Functions)
- Allows use of RICT without “nesting” logical connectors
- Note excluding RICT for items not modeled in PRA (e.g. Functions 2.c, 2.d, 2.e, 6.a, 6.b, 7.a, and 7.b)



Proposed TS 3.3.6.1 Condition A

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required channels inoperable.	<p>A.1 -----NOTE----- Only applicable to Functions 2.a, 2.b, 6.b, 7.a, and 7.b. -----</p> <p>Place channel in trip.</p>	<p>12 hours</p> <p><u>OR</u></p> <p>-----NOTE----- Not applicable to Functions 6.b, 7.a, and 7.b. -----</p> <p>In accordance with the Risk Informed Completion Time Program</p>
	<p><u>AND</u></p> <p>A.2 -----NOTE----- Not applicable to Functions 2.a, 2.b, 6.b, 7.a, and 7.b. -----</p> <p>Place channel in trip.</p>	<p>24 hours</p> <p><u>OR</u></p> <p>-----NOTE----- Not applicable to Functions 2.c, 2.d, 2.e, and 6.a. -----</p> <p>In accordance with the Risk Informed Completion Time Program</p>



Variations (continued)

- TS 3.5.1 reformatted to allow RICT with one LPCI pump inoperable in one or both subsystems AND one CS subsystem inoperable
- Per PRA success criteria AND design basis success criteria, this is not a LOF Condition
- Existing LCO 3.0.3 Completion Times retained
 - LCO 3.0.3 provides 1 hour to initiate action to place unit in Mode 2 in 7 hours, Mode 3 in 13 hours, and Mode 4 in 37 hours
- Similar to Vogtle and Farley reformatting made during their respective amendment request for risk-informed TS

Proposed TS 3.5.1 Conditions C and D

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. One LPCI pump in one or both LPCI subsystems inoperable. <u>AND</u> One CS subsystem inoperable.	C.1 Restore low pressure ECCS injection/spray subsystem(s) to OPERABLE status.	1 hour <u>OR</u> In accordance with the Risk Informed Completion Time Program
D. Required Action and associated Completion Time of Condition C not met.	D.1 Be in MODE 2. <u>AND</u> D.2 Be in MODE 3. <u>AND</u> D.3 Be in MODE 4.	6 hours 12 hours 36 hours





Variations - Revision to TS 3.8.1

- TS 3.8.1 Conditions rearranged to avoid Completion Time nesting
- Due to shared systems (e.g. SGT, MCREC), and due to loads being supplied from opposite unit (e.g. LPCI valve load centers), each Unit requires AC sources (e.g. a required EDG or offsite transmission network) from the opposite Unit
 - TS 3.8.1 includes Conditions for required AC sources from opposite unit
- For inoperable Unit DG, TS allow 14 day CT provided swing DG is “locked” to that unit and provided maintenance restrictions (e.g. required Operable systems and functions) are met

Current Unit 1 RA B.4.1

B.4.1	Restore DG to OPERABLE status	72 hours for a Unit 1 DG with the swing DG not inhibited or maintenance restrictions not met
		<u>AND</u>
		14 days for a Unit 1 DG with the swing DG inhibited from <u>automatically</u> aligning to Unit 2 and maintenance restrictions met
		<u>AND</u>
		72 hours for the swing diesel with maintenance restrictions not met
		<u>AND</u>
		14 days for the swing diesel with maintenance restrictions met

Proposed Unit 1 RA B.4.1

B.4.1	Restore DG to OPERABLE status.	72 hours
		<u>OR</u>
		In accordance with the Risk Informed Completion Time Program
	<u>OR</u>	
B.4.2.1	-----NOTE----- Only applicable to Unit 1 DG.	
	Verify swing DG inhibited from automatically aligning to Unit 2.	72 hours
	<u>AND</u>	
B.4.2.2	Verify maintenance restrictions met.	72 hours
	<u>AND</u>	
B.4.2.3	Restore DG to OPERABLE status.	14 days
		<u>OR</u>
		In accordance with the Risk Informed Completion Time Program



Loss of Function (LOF) Considerations

- Some Instrumentation Conditions are applicable when “one or more” channels are inoperable, which could represent a LOF
- TSTF-505 suggests a Note to limit the application of RICT
- Should a LOF exist, TS require entry into a separate Condition that does not have RICT option. Using TS 3.3.1.1 as an example:
 - Should LOF exist for Condition A or Condition B, Condition C will also be entered
 - Condition C is more restrictive and precludes applying a RICT for LOF

TS 3.3.1.1

CONDITION		REQUIRED ACTION	COMPLETION TIME
C.	One or more Functions with RPS trip capability not maintained.	C.1 Restore RPS trip capability.	1 hour



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