

NRR-PMDAPEm Resource

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Sent: Friday, March 17, 2017 8:03 AM
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Subject: SNC Slides for Mar 13, 2017, Public Meeting
Attachments: NRC-SNC Meeting - 3-13-17.pptx

Attached are the slides that SNC used at the March 13, 2017, public meeting regarding the Vogtle 4b LAR.

Ed

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Southern
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Plant Vogtle Risk Informed Technical Specifications

NRC/SNC Public Meeting
March 13, 2017

Purpose

Continue dialog on remaining issues on Vogtle RITS LAR; focus on SNC's approach for addressing common cause risk when in an emergent Risk Informed Completion Time (RICT).

Background

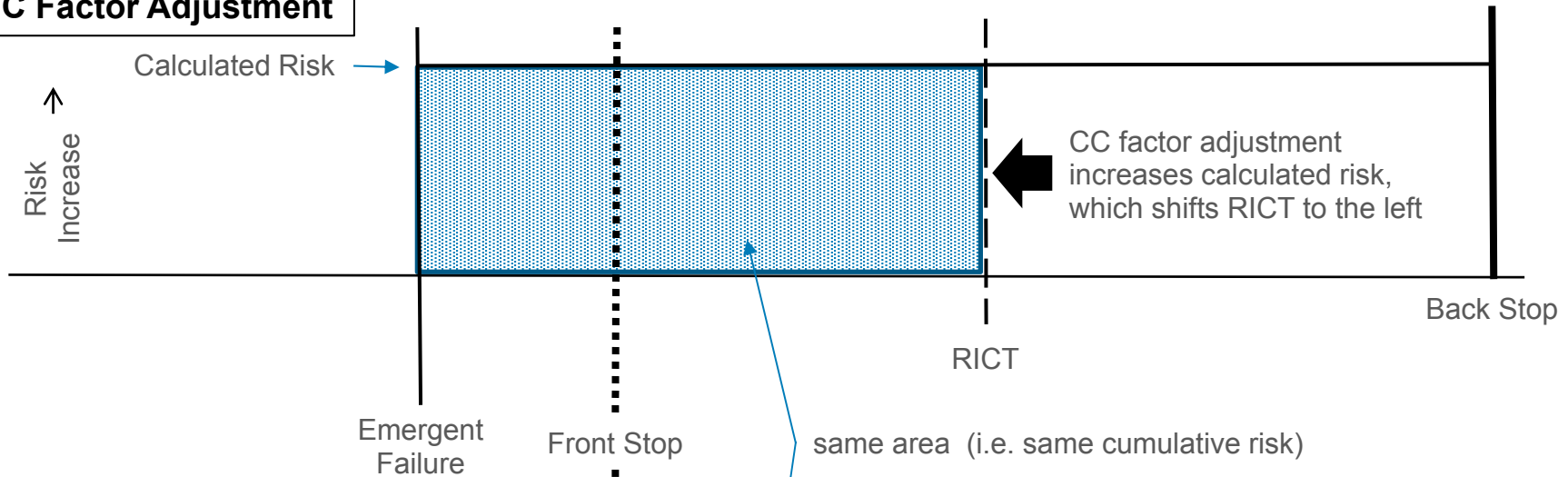
- RAI #6 concerns treatment of common cause in the case of an emergent failure
- Several discussions on the topic, including an NRC/SNC public meeting on February 28, 2017
- SNC provided a draft response on its proposed approach on March 9, 2017

RG 1.177 – Treatment of Common Cause Failures

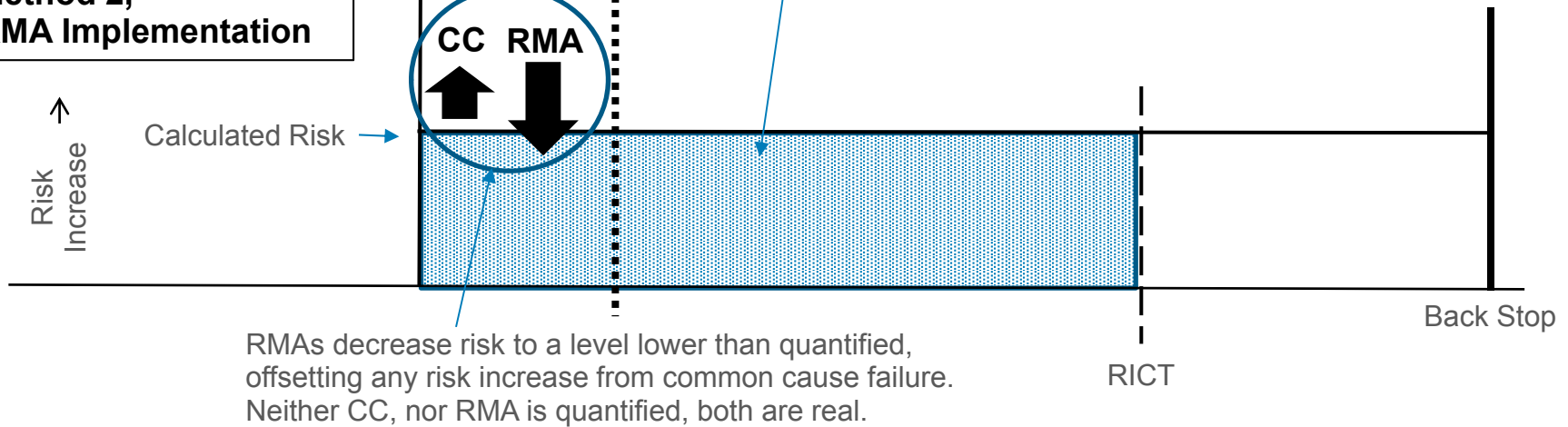
- Disagreement on whether a RICT calculation falls under Tier 1 (License Amendment) change or Tier 3 contemporaneous change.
- Intent of RG guidance for an emergent failure is to account for risk increase from potential for common cause failure
- Guidance can be met by increasing CC factors in RICT calculation
- SNC proposes to meet guidance by implementing appropriate RMAs to offset risk from potential for common cause failure
- RAI Response
 - Presents justification for effectiveness of additional RMAs to enhance safety Provides a quantitative comparison of CCF adjustment and RMAs

Risk Management/Protected Equipment Actions - RICT

Method 1, CC Factor Adjustment



Method 2, RMA Implementation




Protective Actions and Risk Management Actions Enhance Safety

RMA's and Protective Actions

- Reach beyond the opposite train/system out of service and consider/protect other mitigative functions
- Ask “what’s next worse thing to happen?”
- Improve risk in a manner not easily quantified (e.g. operator reliability, human-induced initiators or unavailability), however, the risk benefit is nonetheless real
- Risk informed process
- Fortify existing defense-in-depth and potentially add defense to manage risk

Example of Risk Reduction from RMAs

- TS Condition 3.5.2, Condition A – One ECCS Train (RHR Pump A) OOS
 - Immediate protection of B RHR Pump Room, 4160V Switchgear Room
 - Next slides detail the RMAs which will be typical in response to emergent failure, before common cause failure potential excluded
 - developed from RICT Program Importance Reports and draft RICT Program RMA procedure
 - Includes “Standard” RMAs and “Additional” RMAs
 - Sensitivity Study
 - Quantifies risk reduction from three RMAs (indicated by )
 - Compare risk increase from CCF adjustment to risk reduction from RMAs
 - Results demonstrate the impact of RMAs offsets impact from CC factor adjustment

Example RMAs: RHR Pump OOS

RMA 1

- A. Maintain availability of fire pumps.
- B. For select fire zones, maintain availability of suppression, detection, and barriers, and avoid activities in the zone that increase risk for fire.

Examples of fire zones in the scope of RMA 1.B

Description	CDF RRW	CDF RAW
Control Building Level A Unit 1 Train A Cable Spreading Room A044	11.6	112
Control Building Level A Isolating Auxiliary Relay Room A045	11.5	27.7
Control Building Level A Train A Corridor A058	11.5	23.4
Control Building Level B Train B / Channel 2 Equipment Room B047	1.06	16544
Control Building Level B Train B Penetration Room B065	1.01	29530

RMA 2 – Perform continuous fire watch at Train B shutdown panel.



Control Building Level A Train B Shutdown Panel Room A043	1.48	22.2
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Additional RMA

Example RMAs: RHR Pump OOS

RMA 3

- A. Challenge/preclude activities which could cause the listed initiating events.

Description	CDF RRW	CDF RAW
Loss of Offsite Power	1.009	19.2
Station Blackout	1.009	5.8
Loss of NSCW	1.003	25,992
Loss of 4160V Bus AA02	1.003	17.9
Loss of 4160V Bus BA03	1.002	12.9



- B. Do not perform switching on 4160V bus 1AA02 and 1BA03.



Additional RMA

Example RMAs: RHR Pump OOS

RMA 4

- A. Maintain the listed SSCs available (preclude testing and maintenance activities which could impact the availability of the SSCs).

Description	CDF RRW	CDF RAW
B RHR System	10.4	5.8
B NSCW System	1.0	4.1
B Diesel Generator	1.008	1.3
B Sequencer	1.006	21.9
480V Bus 1BB16	1.006	5.9
ACCW	1.001	4.4
4160V Bus 1BA03	1.001	11.8
4160V Bus 1AA02	1.001	1.5

- B. Perform non-intrusive inspection of the B RHR pump and support systems to identify any apparent operability concerns.

[Additional RMA](#)

Example RMAs: RHR Pump OOS

RMA 5

A. Brief operators on configuration risk profile, basis, and RMAs.

B. Perform beginning of shift briefings for control room operators focusing on actions to establish feed and bleed cooling in the event that main feedwater, condensate, and auxiliary feedwater are not available to supply steam generators.

[Additional RMA](#)

Sensitivity Study Results – RHR Pump OOS

RHR Pump A failed in all evaluations

Description	CDF (/year)	Delta CDF (/year)	RICT (days)	RICT Change Relative to Method 2 (Days)
CC factor adjustment evaluation (Method 1)	4.79E-04	4.30E-04	8.5	-0.9
SNC RICT Evaluation (Method 2) - no credit for RMAs - no CC factor adjustment	4.37E-04	3.88E-04	9.4	N/A
Sensitivity Study - limited quantitative RMA credit - no CC factor adjustment	4.05E-04	3.56E-04	10.2	+0.8



- Questions/Discussion