

United States Nuclear Regulatory Commission
Protecting People and the Environment

Status on Risk-Informed Considerations to GSI-191

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GSI-191

- Long standing technical issue to address adequate long term cooling
- Commission direction provided to the staff on December 23, 2010
- <http://www.nrc.gov/reading-rm/doc-collections/commission/srm/2010/2010-0113srm.pdf>
- This presentation will focus on the risk-informed aspects of that SRM

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Commission Direction

- Explore alternatives for risk informing the path forward
 - Innovation
 - Creativity
- Consider how transition break size versus no transition break size might impact this issue

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Transition Break Size Impact

- Likely reduction in the scope of modifications
- Modifications could be required based on:
 - design-basis breaks below the TBS
 - beyond-design-basis breaks above the TBS
 - or both
- In-vessel effects may be limiting

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No Transition Break Size Impact

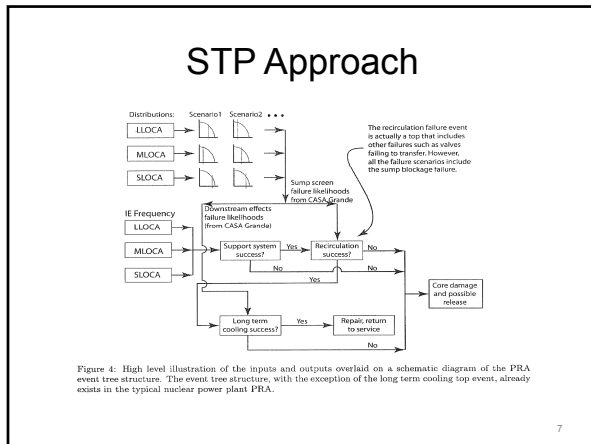
- All breaks can be addressed with same methodology
- STP “no-transition-break-size” alternative approach has not been submitted for staff review but shows promise

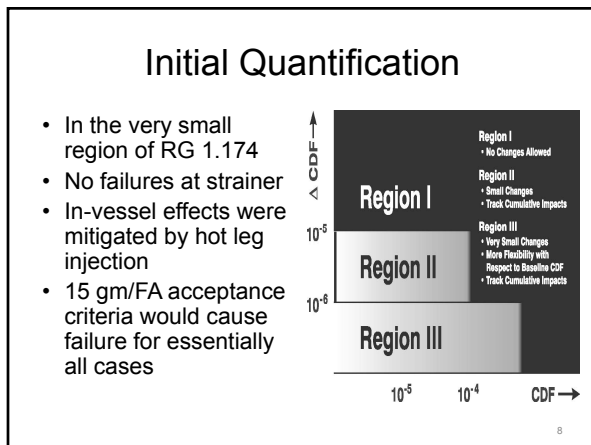
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No Transition Break Size Impact

- Heavy reliance on physical models
- Defense-in-depth and safety margin considerations become more important
- Uncertainty becomes more important

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- ### Initial Quantification
- Staff has not reviewed initial quantification
 - Using arithmetic versus geometric mean has major impact on results
 - Many assumptions required, alternative assumptions may change results
 - Both size and orientation of partial circumferential breaks need to be considered

Possible Exemption from ECCS Acceptance Criteria

- Guidance in RG 1.174 could be used to support a specific exemption under 10 CFR 50.12, "Specific Exemptions"
- Staff would plan for consultation with the Commission
- South Texas Project exemption to multiple special treatment requirements could serve as precedent (ML012040370)

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Conclusion

- Updated Options paper to the Commission by June 2012
- STP Alternative Approach shows promise
- One of the more challenging risk-informed applications

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