



# ESBWR Nuclear Safety Operational Analysis

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## NSOA Basis

- From Part 52 Appendix O, the submittal for review of the standard design shall include:
  - > “Information pertaining to design features that affect plans for coping with emergencies in the operation of the reactor or major portion thereof.”
- Tier 2, as a whole, meets this requirement, but not in a single, stand-alone Section/Chapter.
- To demonstrate compliance and provide a better understanding of the Tier 2 content, a NSOA will be included in Chapter 15 of Tier 2.

## NSOA Definition

- A system level qualitative FMEA
- NSOAs have been included in all FSARs for the later BWR/4s - BWR/6s, and the ABWR
- Pictorially shows the plant protective functions for all of the events addressed in the Tier 2 Safety Analyses.

## NSOA Events

- Shows the plant protective functions used for
  - > Normal Operations
  - > AOOs
  - > DBAs
  - > Beyond Design Basis Plant Capability Evaluations
- Includes the Success Path for each event.

## NSOA Figures

- Identifies the system operational conditions utilized to satisfy the Success Path for each event
- The SRP address many systems/capabilities that are not needed for the ESBWR. The NSOA figures readily show that those systems are not required for the ESBWR
- The systems addressed in the Tech Specs will be consistent with the Design Basis Events in the NSOA & Safety Analyses

# NSOA Considerations for Events and Event Limits

- Event classifications are consistent with current regulatory requirements which require AOOs, specific accident, and plant capability evaluations.
- Inadvertent Isolation Condenser Operation has been added.
- All Recirculation System induced events have been eliminated
- The Misloaded Bundle Accident may be reclassified pending NRC review and approval of GESTAR II Amendment 28.

## Summary

- The NSOA shows the plant protective functions for all of the events addressed in the Tier 2 Safety Analyses in a simple, easy to understand format
- The NSOA figures readily show those systems that are not required and are therefore not addressed for the ESBWR