



RIC 2007

Session Introduction and Overview on the Different Risk Analyses Performed by the NRC and How the Results Are Used

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March 15, 2007

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Session Overview

- Introduction into the types of risk analyses performed by the NRC and how they are used
- Introduction into SPAR models
- NRR perspective on risk assessment tools and processes in operational decision-making
- Unresolved technical issues that cause differences between NRC and licensee results
- Industry perspective on use of licensee PRAs to assess risk significance of inspection findings

NRC Risk Analyses Performed

- Significance Determination Process (SDP)
- Accident Sequence Precursor (ASP)
- Management Directive (MD) 8.3

Significance Determination Process

- Analysis used to determine the safety significance of inspection findings
 - Provides an objective and common framework for communicating the potential safety significance of inspection findings
 - Provide a basis for enforcement actions
 - Used to risk-inform the inspection program
- SPAR models or SDP Phase II notebooks are used for the analysis
- Inspection findings are assigned a color based on the safety significance
 - Green (very low safety significance)
 - White (low to moderate safety significance)
 - Yellow (substantial safety significance)
 - Red (high safety significance)

Accident Sequence Precursor

- Analysis used to determine the conditional likelihood of a core damage accident given an initiating event and/or plant equipment failures or unavailability
 - Determine the safety significance of events and their regulatory implications
 - Provide feedback to improve SPAR models
 - Required performance measures in Annual Performance and Accountability Report to Congress and Industry Trends Program
- A CCDP or increase in CDP is calculated using SPAR model
 - The ASP program screening uses a screening threshold of CCDP of $\leq 10^{-6}$
- ASP analyses are performed regardless of whether the event had licensee performance deficiencies

Management Directive 8.3

- Analysis used to determine the level of inspection response, if any, that is required for a significant operational event
 - Estimate of the event CCDP is calculated using SPAR model
 - Deterministic criteria are also part of decision making process
- An overlap of inspection option thresholds allows for factors such as analysis uncertainty and deterministic insights to be considered
 - Incident Investigation Team (IIT): CCDP \square 5E-4
 - Augmented Inspection Team (AIT): 1E-5 \square CCDP \square 5E-3
 - Special Investigation (SI): 1E-6 \square CCDP \square 1E-4