

Mitigating System Performance Index (MSPI)

Guidance Changes and Lessons Learned

December 6, 2005



Agenda

- Review Generic Issues from NRC
Staff Review of MSPI Basis
Documents
 - Additional Clarification
 - Changes to the Guidance



Truncation

- Review of several Basis Documents identified truncation values that did not comply with the guidance, 5 to 6 orders of magnitude below baseline CDF.
- Review of several Basis Documents identified Birnbaum values that were obviously not converged at a truncation 6 orders of magnitude below the baseline CDF.
- A small set of sensitivity studies confirmed Birnbaums could be under estimated by factors of 2 to 5 at the current value.

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Truncation

- New guidance has three options for truncation.
 - If you use an existing cutset solution to calculate importance measures:
 - ◆ 7 orders of magnitude below baseline CDF
 - ◆ Perform a sensitivity study as directed to use a value higher than this.
 - If you calculate importance measures by re-quantifying the model
 - ◆ 5 orders of magnitude below baseline CDF

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Truncation

- Guidance Changes in Appendix F
 - UAI - Section 1.3.1
 - URI - Section 2.3.1
 - New Section 6
 - ◆ Importance Measures by Re-quantification



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Success Criteria

- The success criteria to be used for MSPI is the success criteria used in the PRA
- The success criteria used in the PRA may be:
 - Design Basis
 - Success Criteria developed specifically for the PRA
 - A combination of the two above



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Success Criteria

- Depending on the origin of the success criteria, the documentation may contain statements such as:
 - For the EAC system, the PRA uses design basis success criteria.
 - For the EAC system, success criteria was developed specifically for the PRA. The applicable parameters are: (supply the specific numeric parameters that define successful operation of the EAC system).
 - For the EAC system, the PRA uses design basis success criteria except for the time to reach rated speed and voltage, which is 15 seconds.

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Success Criteria

- No justification is required to be provided in the basis document for the specific success criteria used in the PRA.
- There may be some confusion that there is a requirement to use the most restrictive of the PRA specific success criteria or design basis success criteria. This is not the case, use what the PRA uses.

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Success Criteria

- Guidance Change to Appendix G section I.C to expand on documentation requirements.



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Demand and Run-time Estimates

- Three types of demand/run-time data are required.
 - Valid ESF actuation in response to an event
 - Testing
 - Operational



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Demand and Run-time Estimates

- The actual number of equipment demands in response to a valid ESF demand are required to be reported by appendix F
 - no choice is provided, it cannot be an estimate
 - the basis document does not need to address real ESF demands at all.



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Demand and Run-time Estimates

- Test demands/run-time values may be estimated or actual
- The basis document should state which method will be used.
- If estimates are to be used document:
 - The basis for the estimate
 - The value developed



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Demand and Run-time Estimates

- Operational demands/run-time values may be estimated or actual
- The basis document should state which method will be used
- If estimates are to be used document:
 - The basis for the estimate
 - The value developed

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Demand and Run-time Estimates

- Guidance Change to Appendix G section I.F to expand on documentation requirements.

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