

**RESPONSE TO NEI PROPOSAL ON
MSPI PRA QUALITY**

Gareth Parry
NRR/DSSA
gwp@nrc.gov
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BACKGROUND

- MSPI PRA quality task group provided its recommendations December 16, 2004
- April 22, 2005 letter from J. Dyer to NEI requested information on the approach to be used by industry in establishing PRA technical adequacy
- NEI response in July 27, 2005 letter from A. Pietrangelo

NEI PROPOSAL

- **Alternative A**
 - Consistent with the task group recommendations
- **Alternative B**
 - Resolve the A&B F&O peer review comments (consistent with task group recommendations)
 - Use industry cross-comparison in lieu of self-assessment
 - Disposition any candidate outliers identified by an industry cross-comparison process

NEI PROPOSAL (Cont'd)

- If F&Os cannot be resolved by 1/1/2006, and significantly impact MSPI, use a modified Birnbaum equal to 3 times the median Birnbaum for the cross-comparison group
- If self-assessment findings (Alternative A) or problems identified by cross-comparison (Alternative B) cannot be resolved by 1/1/2006 use a modified Birnbaum equal to 3 times the median Birnbaum for the cross-comparison group

NEI PROPOSAL (Cont'd)

- Criteria for identification of candidate outlier:
 - Birnbaum is $<$ one third of the median value for the comparison group **AND**
 - Birnbaum is $<$ mean minus one standard deviation for the comparison group

STAFF ASSESSMENT

- Assessment based on review of industry data, and comparison with SPAR model results
- Results analyzed by RES using the Staff's grouping of plants
- The analysis has not yet been performed for the cooling water systems, and the staff conclusions may differ for these systems

STAFF RECOMMENDATION 1

- Observation: for some groups the Birnbaum mean minus one standard deviation is negative
- Staff recommendation: change the screening criteria for candidate outliers to :
 - Birnbaum is $<$ one third of the median value for the comparison group **OR**
 - Birnbaum is $<$ mean minus one standard deviation for the comparison group

STAFF RECOMMENDATION 2

- Observation: applying a factor of 3 to the median of the cross-comparison group can result in a value for the Birnbaum that is less than the original value
- Staff recommendation: apply the factor of three to the original value or the median of the cross-comparison group, whichever is the larger

STAFF RECOMMENDATION 3

- Observations:
 - In some cases there is a systematic shift between the SPAR and industry distributions of Birnbaum values, with SPAR tending to lower values
 - There are some substantial differences in ranking between SPAR and industry for some plants, even when the distributions agree in shape

STAFF RECOMMENDATION 3 (Cont'd)

- The systematic shift may be due to differences in data, e.g., LOCA frequencies or TDP FTR, but this has not been verified
- The significant differences in ranking may result from:
 - Issues with the SPAR model
 - Issues with the licensee model
 - Licensee model may take appropriate credit for more mitigation than is typical
 - Other?

STAFF RECOMMENDATION 3 (Cont'd)

- Since the reason for the difference is not known a priori, the staff will identify those plants with significant differences in ranking as candidate outliers
- Criteria for candidate outliers: SPAR and industry values ranking differ by 4 deciles or more, or where distributions overlap, where SPAR and industry values differ by greater than a factor of three
- Information needed for resolution: a summary of how the corresponding issues identified in Section 2 and Table 1 of the MSPI task group report are addressed

CONCLUSION

- The NEI Alternative B when modified as described in this presentation should be an acceptable approach to demonstrating PRA technical adequacy for MSPI implementation for front line systems
- The SPAR/industry rank comparison is consistent with the recommendation in Section 7 of the task group report
- When the data on cooling water systems had been analyzed, there may be a necessity to modify the staff position