NRCREP Resource

From: DWakefield@absconsulting.com
Sent: Tuesday, September 02, 2008 7:53 PM
To: NRCREP Resource
Subject: Comments on draft regulatory guide DG-1200, revision 2

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(2)

Please find my comments on the draft regulatory guide below.

Comments on Draft Regulatory Guide DG-1200, Revision 2

1. Page 1. Does the scope of this guide also apply to NRC developed PRA models? For example, do they apply to SPAR models which are used in regulatory decision making? It seems unlikely that SPAR models meet the requirements of this guide.

2. Table 1, page 9 , section 1.2.2 page 11, and Table 2 page 18. Plant damage state analysis is listed as a technical element for Level 2. The use of plant damage states is an artifact of older ways of interfacing Level 1 models with Level 2 models. In the large event tree linking approach, plant damage states need not be used to interface Level 1 with Level 2. Instead, the containment event trees developed for Level 2 can be linked directly to the Level 1 event trees without the need to assign Level 1 sequences to plant damage states. This approach is more accurate because it avoids the need to approximate core damage scenario attributes by the binning of "similar" scenarios. Instead, to the extent that the status of each attribute affects the Level 2 analysis differently, it can be modeled as such, without approximation. Effectively then, many thousands of combinations of Level 1 attributes or "plant damage states" can be used to quantify the Level 2 event tree. The grouping of scenarios into a smaller set of plant damage states is less accurate. The description of plant damage state analysis in section 1.2.2 should be modified to declare this alternative and more accurate approach to defining Level 2 boundary conditions as also acceptable.

3. Footnote 3 on page 4 and Table 2 – element Quantification. The current draft is not sufficiently complete in its specification of significance. Significant sequences and significant basic events are both defined in terms of CDF, LERF, or LRF. However, the truncation values that are sufficiently low to calculate the baseline values of CDF, LERF, and LRF are not specified. The statement in Table 2 ("truncation values set relative to the total plant CDF such that the CDF is stable with respect to further reduction in the truncation value") is not specific enough for an accurate determination of significance for either sequences or basic events. Stability of the CDF with initial reduction in truncation value is not a valid indicator of convergence. Selected basic events may contribute more to CDF or LERF than .005 from sequences otherwise truncated below the initial truncation values used. The vague notions in the current language suggests that lowering the truncation factor would allow one to judge that the CDF is stable even though it increases substantially more than .005.

4. Table 2, element Quantification, Page 18. Is the CDF mean value mentioned a true mean value obtained by Monte Carlo simulation of parameter uncertainties but not modeling uncertainties, uncertainty analysis including both epistemic and aleatory uncertainties, or a point estimate obtained by propagating only the parameter means?

5. Table 4, Level 2 PRA, Interpretation of Results, page 25. Instead of identification of the contributors to containment failure, shouldn't it be contributors to LERF and LRF and resulting source terms?

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