

## **Comments on NRC proposed response to FAQ-0051, Hot Short (HS) Duration**

- 1) Overall, the process used for this interim guidance has resulted in a significant rewrite of the original wording on the FAQ, without discussion with the author or industry. Based on a review of the original FAQ, more than 50% of the original wording was removed from the FAQ, while substantial new wording was added. A more productive interaction approach is needed. The process by which an author can submit an FAQ, hoping for comments, feedback, and discussion has not been followed. The present process of NRC interim guidance should be replaced with a more typical comment/response with the author. It would be helpful if the proposed FAQ response provided justification for the significant changes from the original version. This would permit the industry to provide a more informed response.
- 2) The background for the FAQ mentions DC circuits. However, the FAQ discussion (interim position) is silent on the non-applicability of the data for DC circuits (see the original FAQ). Please add a sentence mentioning that hot short duration data are not considered applicable for DC circuits.
- 3) Change DC testing dates to Fall 2009/Spring 2010 to reflect the actual schedule..
- 4) Introduction, Par. 3: Recommend changing "...defined by the PRA, ..." to "defined by the PRA accident sequences, ..." For the example, the time available may depend on other events, such as how many PORVs are open. If a single PORV is open, the time available may be long, but with two PORVs open, the time would be much shorter.
- 5) Interim Solution, item 1: The industry strongly disagrees with the requirement here that *the HS duration should not be used as a basis for omitting/removing cables or equipment for the plant model or screening sequences from the plant model*. This is a deterministic approach and is not appropriate or consistent with standard probabilistic risk assessment (PRA) methods or the risk-informed, performance-based approach in NFPA 805. Screening criteria for the PRA are defined in the ASME/ANS PRA Standard, both on a system level (e.g., supporting requirement (SR) SY-A15; two orders of magnitude below the top event), initiating event level (e.g., SR IE-C6), and final core damage frequency (CDF)/large early release frequency (LERF) level. The ASME/ANS PRA Standard should be the defining guidance for when scenarios are included or not included in the model. Including low-likelihood scenarios, where the likelihood is partially impacted by HS duration, would be an ineffective use of resources. For example, if there are two motor-operated valves (MOVs) as head vents and there is 24 hours to close these vents to ensure adequate make-up inventory, then using HS probability, the likelihood of two MOVs spurious operating, given cable damage, is  $0.33 \times 0.33 = 0.1$ . However, given manual operation of the valves is possible (the HS does not damage the valve stem), the likelihood the HS would last greater than 15 minutes (0.01) could be used as basis to say that at least one of

the MOVs could be manually operated after 15 minutes. This type of logic (if demonstrated to be below the ASME/ANS PRA Standard criteria) would be acceptable in a PRA being reviewed against the Standard. Having the requirement here in the FAQ adds “requirements” that do not comport with the Standard, and do not provide value to the overall development and quantification of a fire PRA. Please remove item 1 from FAQ-0051.

- 6) Interim Solution, item 4: The industry disagrees with the re-wording of the requirement here. The original wording was:

“Credit for hot short duration recovery of a component where the circuit involved is an auxiliary or “off-scheme” circuit needs to include a functional circuit analysis demonstrating the effect of a short to ground on the auxiliary circuit.”

The revised wording says:

*“Credit should not be taken for recovery of a spurious actuation if a short to ground on an auxiliary or “off-scheme” circuit would impede recovery. For these cases, no credit can be given for hot short duration since the short to ground will not clear by itself.”*

The supporting paragraphs in item 4 describe the issue, but the base requirement in short says “do not credit recovery.” The recommendation should say that the ability to recover the component once the HS clears should be analyzed and demonstrated as feasible.