Industry Comment 1

Overall, the process used for this interim guidance has resulted in a significant re-write 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.

Response:

The NRC Staff used the process described in "Path Forward in Resolving Frequently Asked Questions Related to NUREG/CR-6850," the enclosure to the June 1, 2009 letter from J. Grobe to A. Marion (ADAMS ML090920045), to resolve Frequently Asked Question (FAQ) 08-0051. Attachment 3 to the enclosure provided a list, including FAQ 08-0051, of FAQs related to NUREG/CR-6850 that would be resolved using the new approach. The following is a summary of the process used to resolve these FAQs.

Approach to Resolve FAQs Related to NUREG/CR-6850

1. **NRR staff, in consultation with RES staff, will develop an Interim Position for each specific FAQ related to NUREG/CR-6850.**
2. **NRR will transmit the draft Interim Position to RES.**
3. **RES will engage EPRI under the MOU to obtain comments on the specific FAQ Interim Position. The MOU Team (RES and EPRI) may agree, disagree, or concur on additional confirmatory research.**
4. **RES will return the specific FAQ Interim Position to NRR with recommendations, as appropriate.**
5. **NRR will appropriately incorporate recommendations generated through review under the RES/EPRI MOU and provide a proposed resolution of the FAQ for industry and other public stakeholder consideration.**
6. **Industry and other public stakeholder comments will be received and appropriately considered in finalizing the FAQ resolution and issuing the final FAQ closure documentation.**

It should be noted that FAQ 08-0051 is the final FAQ that will be resolved using this approach. Additional FAQs, including those which have not been submitted yet, will continue to be resolved using the regular iterative/cooperative FAQ process.

Industry Comment 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.

Response:

The hot short duration data obtained from testing of alternating current (ac) circuits is currently not considered applicable to direct current (dc) circuits. Future review and analysis of the dc-circuit testing (currently ongoing) may determine if the ac hot short duration data is applicable and, if so, to what extent.

Industry Comment 3

Change DC testing dates to Fall 2009/Spring 2010 to reflect the actual schedule.

Response:

The Sandia National Laboratory testing of dc circuits, sponsored by the U.S. Nuclear Regulatory Commission began in July 2009 and it is anticipated to conclude in March 2010. Therefore, the associated statement in FAQ 51 should say "Testing will be conducted on spurious actuations on DC circuits in the summer/fall of 2009 and continue until spring of 2010."

Industry Comment 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.

Response:

Industry recommended change to refer to PRA accident sequences is made.

Industry Comment 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*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.

Response:

The entire discussion in item 1 in the previous version of FAQ 51 has been removed to address industry's comment. Particularly, the sentence on hot short duration probabilities being used as a basis for omitting/removing cables or equipment from the plant model or for screening sequences from the plant model warrants further discussion. The NRC recognizes that screening methodologies, when adequately documented and justified, may form part of a technically acceptable process for developing a fire PRA. Consistent with RG 1.200, the technical acceptability of any screening methodology should be based on the specific application that the fire PRA supports. Accordingly, the NRC takes no position on whether the use of hot short duration probabilities will actually screen cables, equipment and sequences from the model. If a licensee uses hot short duration probabilities to screen cables, equipment, or sequences from the model and this action results in a key source of uncertainty for the specific application, then the licensee is expected to address this uncertainty, e.g., perform sensitivity studies to gauge the impact of the omitted cables, equipment, or sequences.

As discussed in RG 1.200, compliance with consensus standards provides one way to demonstrate the technical adequacy of a fire PRA. However, consensus standards should not be used to provide the rationale for specific details in a fire PRA methodology. The NRC notes that, consistent with RIS 2007-19 and an NRC letter to NEI sent July 12, 2006 (ADAMS Accession No. ML061660105), the FAQ process is not the arena in which to resolve interpretation issues with other NRC regulatory documents.

<u>Industry Comment 6</u>

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.

Response:

We agree that recovery of the component may be possible once the hot short clears providing the functional circuit analysis demonstrates that recovery is feasible. Under cases where a functional circuit analysis cannot demonstrate recovery, no credit for hot short duration can be credited. Discussions during a January 28, 2010, public FAQ call concluded that item 4 should be reworded as follows

> ***"Given a short to ground on an auxiliary or "off-scheme" circuit, credit for recovery of a spurious actuation needs to include a functional circuit analysis demonstrating the effect of a short to ground on the auxiliary circuit. For cases where functional circuit analysis cannot demonstrate recovery, no credit can be given for hot short duration since the short to ground will not clear by itself."***