

11/26/03  
68 FE 66501

117

**From:** "Fleur Meister" <fleurmeister@tri-en.com>  
**To:** <nrcprep@nrc.gov>  
**Date:** Tue, Dec 30, 2003 8:38 PM  
**Subject:** RE: Comments on Draft Criteria for Manual Actions for Post-fire Safe Shutdown

Thank you for informing me that the comment period has been extended to January 26, 2004. I have made some additions, corrections and clarifications to my previous email. If you have any questions, please feel free to contact me at my phone numbers below.

thanks,

Fleur de Peralta-Meister

-----Original Message-----

From: Fleur Meister [mailto:fleurmeister@tri-en.com]

Sent: Monday, December 29, 2003 3:35 PM

To: nrcprep@nrc.gov

Cc: rfd@nrc.gov; rhg@nrc.gov

Subject: Comments on Draft Criteria for Manual Actions for Post-fire Safe Shutdown

The following are comments/questions that supplement information that I provided during the public meeting held on November 13, 2003. I read the transcripts of the public meeting, and it did not quite cover the flavor of my comments.

1. Enclosure 2 of the clarification letter to Generic Letter 81-12 (Attachment 2, Safe Shutdown Capability), provided acceptable methods for "protecting redundant and/or alternative equipment needed for safe shutdown in the event of a fire," and provided information on "Associated Circuits of Concern". It included (A) a definition of associated circuits for Appendix R consideration, (B) the guidelines for protecting the safe shutdown capability from fire-induced failures of associated circuits, and (C) the information required by the staff to review associated circuits. In particular, my question is related to "cables that have a connection to circuits of equipment whose spurious operation would affect the shutdown capability (e.g., RHR/RCS isolation valves, ADS valves, PORVs, steam generator atmospheric dump valves, instrumentation, steam bypass, etc.)." The guidelines provided in this letter for protecting circuits of equipment and/or components whose spurious operation would affect the capability to safely shutdown are either:

[Fleur Meister]

1. provide protection in accordance with Section III.G.2 of Appendix R, or

2. b. For circuits of equipment and/or components whose spurious operation would affect the capability to safely shutdown:

(1) provide a means to isolate equipment and/or components from the fire area (i.e., remove power cables, open circuit breakers), or

(2) provide electrical isolation that prevents operation (e.g., breakers, fuses, amplifiers, control switches, current XFRS, fiber optic couplers, relays, and transducers; or

(3) provide a means to detect spurious operations and then procedures to defeat the maloperation of equipment (i.e., closure of the block valve if the PORV spuriously operates, opening of the breakers to remove spurious operation of safety injection).

RECEIVED  
 2003 DEC 31 PM 1:36  
 Rules and Directives  
 Branch  
 USNRC

Template = ADM-013

E-RFDs = ADM-03  
 Add - R. Dudley (RFD)  
 R. Gallucci (RHG)

In the generic letter, it stated that "the guidelines for protecting the safe shutdown capability from fire-induced failures of associated circuits are not requirements, and that these guidelines should be used only as guidance when needed. In addition, the guidelines do not limit the "alternatives" available for protecting the shutdown capability. It further states, that "all proposed methods for protection of the shutdown capability from fire-induced failures will be evaluated by the staff for acceptability." In compliance with Appendix R, a licensee's method for evaluating Associated Circuits of Concern (Common Power Supply, Common Enclosure, and Spurious Operation) were required to be submitted, and most were reviewed during the NRC inspections that were performed in the mid- to late-80's timeframe. If these guidelines were previously provided to licensees as an acceptable "alternative" to III.G.2 protection, wouldn't the manual actions that are credited to mitigate spurious operations of associated circuits be part of the approved "license bases" for a licensee, even though a specific exemption from III.G.2 was not submitted and approved? Similarly, if a licensee chooses to administratively maintain a breaker open [option 2.b.(1)], does that option also need to be approved since it is not one of the III.G.2 requirements? The same question applies to common power supply and common enclosure actions that are performed (e.g., operator actions to mitigate high impedance faults that GL 86-10 states is a scenario that must be postulated). And, finally, where does it say in GL 81-12 that if these options are chosen to address associated circuits of concern, then automatic suppression and detection is also required in the area. How does the submittal and review of associated circuits fit into the specific III.G.2 requirements, when GL 81-12 intentionally indicated that they were acceptable alternative guidelines for compliance with III.G.2 and associated circuit of concern were specifically reviewed as part of the Appendix R inspections? The issues regarding resolution of associated circuits of concern should be consistently addressed in the regulatory arena, (e.g. all the options in GL 81-12 are acceptable alternatives to III.G.2 and are not within the scope of an "exemption" from III.G.2 requirements). It doesn't seem to make sense to say a licensee is in violation of III.G.2 requirements, when the licensee is following a methodology guideline that was provided by the NRC in GL 81-12. If these actions can be performed safely prior to reaching an unrecoverable condition, it seems the criteria of III.G.1.a is satisfied.

2. In addition, to the above question, the "alternatives" provided in GL 81-12 did not specify the need to install area-wide automatic detection and suppression in the areas where manual actions are credited. Why would the proposed rulemaking change for III.G.2 also require automatic detection and suppression be installed in an area where manual actions are credited? Please clarify the difference between the original guidelines and the current proposals?

3. Manual valves that are credited as a redundant means of isolating (or aligning) a safe shutdown flow path would satisfy the III.G.2 separation requirements provided the manual valve is not located independent of the affected fire area and is separated by 3-hour fire barrier, and therefore, satisfies III.G.1.a. In accordance with the draft criteria, the feasibility criteria appears to only be applicable to III.G.2 manual actions. Please clarify if operation of manual valves also falls within this proposed feasibility criteria. The operation of manual valves was also identified as not being within the scope of III.G.2 manual actions in NRC letter to NEI dated 5/17/2002.

4. Is the proposed feasibility criteria also applicable to manual actions credited to satisfy Section III.G.3 (Alternative Shutdown), or are those manual actions subject to Section III.L requirements, which are not as detailed as the proposed feasibility criteria? For example, communications and

5. Please confirm (re-state in the feasibility criteria) that the diagnostic instrument credited does not to be located in the control room. (This was stated at the public meeting).

6. In determining temperature and humidity conditions, is this implying that the indicators for room temperature and/or humidity need to be part of the "safe shutdown equipment list" or is a calculation of temperature/humidity conditions expected for every room/corridor that an operator is expected to traverse through to indicate "acceptable rationale" for concluding that it will not adversely affect performance of the manual action. This is a very subjective criteria. What are the criteria for acceptable temperature and humidity conditions?

7. Please confirm (re-state) the response at the public meeting that sufficient operator staff could be shown using the minimum shift that is controlled administratively (exclusive of those that will be part of the fire brigade), and not the minimum Tech Spec shift levels.

8. Is documentation expected for every fire area where manual actions are credited? (Do these also include operation of manual valves, which may not be within the scope of III.G.2 manual action)?

9. Section III.G.1.a requirements indicates that features should be provided such that one train of hot shutdown systems from either the control room or emergency control station(s) is free from fire damage. In meeting III.G.2 separation requirements, the "emergency control station" that is referred to in III.G.1.a could be a local control panel, motor control center, load center, local valve hand wheels, etc. If these "emergency control stations" are independent of the fire area of concern and are separated by 3-hour barriers, then wouldn't III.G.2.a (3-hour fire barrier) be satisfied? If so, then does the feasibility criteria apply to the actions at these emergency control stations?

10. It would be helpful to licensees if the "scope" of equipment/components that are subjected to the "feasibility criteria" be accurately defined or specific issues be delineated to reduce confusion to the "new" information that is being provided to licensees. What exactly falls within III.G.2 manual actions that are subjected to the feasibility criteria? Based on the previous items discussed, the following types of manual actions do not appear to be within the scope of III.G.2 manual actions, but it should be clearly described in the feasibility criteria:

- a.. operation of manual valves,
- b.. operation of equipment to mitigate spurious operations (GL 81-12 defined these actions as acceptable alternatives to III.G.2),
- c.. operation of breakers to mitigate potential high impedance fault concerns
- d.. operation of equipment/components from the emergency control stations

11. The draft criteria also indicated that enforcement discretion would

be allowed if the fire area has suppression and detection installed, and the manual actions satisfied the proposed criteria. In responding to question/comment #10, it will better define the areas where "suppression and detection" are expected to be installed. As stated, there is no current regulation or previous NRC guidance that states that automatic suppression and detection is required in areas where manual actions are credited. This appears to be a "back fit" requirement.

12. Is the use of manual actions in a fire scenario different than the use of manual actions in other design bases accidents? Are the feasibility criteria stated in the draft consistent with requirements for mitigating other accident scenarios?

13. On a separate topic, the issue of simultaneous multiple spurious operations (draft RIS dated 9/17/03) will add an interesting twist in the actions to mitigate spurious operations. GL 86-10 states that one worst-case spurious operation need only be assumed, in conjunction with loss of all automatic functions and a loss of offsite power (for alternative shutdown areas). If it is determined that the options to mitigate fire damage to associated circuits of concern fall within the "alternative" shutdown requirements of III.G.3 (see question #1), then the RIS conclusions contradict the guidance provided in Generic Letter 86-10.

These are questions that are asked when a licensee generates the scope and documents the feasibility of credited manual actions, as well as when a licensee reviews the license bases impact with crediting manual actions. The response would also help in determining the "enforcement discretion" threshold for licensees. Should you have any questions on my comments or need clarification, please feel free to email me or call me at my phone numbers below. Thank you for your consideration in addressing my concerns.

Thanks,

Fleur de Peralta-Meister, PE  
President

Tri-En Corporation  
110 Columbia Street, Suite 113  
Vancouver, WA 98660  
Office: (360) 735-0092 Cell: (360) 600-8669  
E-fax: (509) 479-1348 Fax: (360) 735-1782  
www.tri-en.com

CC: <rfd@nrc.gov>, <rhg@nrc.gov>