

BWR OWNERS' GROUP

RULES AND DIRECTIVES

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10/19/05

70 FR 60859

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February 6, 2006

Chief, Rules and Directives Branch
Division of Administrative Services
Office of Administration
U.S. Nuclear Regulatory Commission
Mail Stop T6-D59
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SUBJECT: Comments on Proposed Generic Communication, *Post-Fire Safe-Shutdown Circuit Analysis Spurious Actuations*, 70 FR 60859

ENCLOSURE: Specific Comments on 70 FR 60859

Dear Mr. Lesar:

We appreciate the opportunity to provide comments on the proposed generic letter related to compliance with existing regulations associated with post-fire safe shutdown circuit analysis. This is an area of longstanding disagreement between the industry and NRC staff. After a period of progress in achieving a better understanding of the issue and identifying reasonable methods for addressing it, the proposed generic letter would be a significant step backward. The NRC proposal will only lead to the expenditure of considerable and unnecessary resources by both staff and industry without significant improvement in safety. We discuss our general concerns below and address specific issues in the enclosure.

Impact of the Proposed Generic Letter

The proposed Generic Letter requests that licensees review their post-fire safe shutdown circuit analysis programs to determine compliance with new NRC interpretation of requirements for circuit analysis stated in the generic letter to gather information from licensees. If licensees determine that they are not in compliance with the stated position, they are to assess the functionality of SSCs to achieve and maintain safe shutdown, describe compensatory measures, and discuss plans for plant modifications and licensing basis changes.

The proposed Generic Letter states a specific interpretation of regulations and regulatory guidance related to multiple spurious actuations, namely, that licensees must consider and design for all possible spurious actuations occurring simultaneously in a fire area in order to be in compliance. The position that licensees should consider all spurious actuations occurring simultaneously is inconsistent with the current regulatory requirements, inconsistent with analysis methods utilized and reviewed by the Staff in the original circuit analysis documentation, potentially impractical in terms of being able to identify the required scope of review, costly in terms of the effort involved in even attempting such a task, and unnecessary in its apparent lack of significant risk and safety benefit.

Staff Review Complete

Template - ADH-013

E-RIDS = ADH-013

Odd = A. Markley (ARWM)

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The possible alternative consequences of the NRC positions in this proposed generic letter include:

- Revision of existing post-fire safe shutdown circuit analyses that currently provide an acceptable degree of protection. The cost of these circuit re-analyses would be in the millions of dollars. The results of the re-analyses will be manifest in either modifications or requests for exemptions.

One licensee has estimated that the physical plant changes necessary to provide compliance with these new requirements could run into many millions of dollars and require five years to fully implement, or hundreds to thousands of costly exemptions or deviations to address alternative means of compliance. While the impact would vary from plant to plant, we believe this impact would be typical for many plants.

- Adopting a risk-informed approach to circuit analysis that involves the adoption of an alternative fire protection licensing basis (NFPA 805). This will require development of a fire PRA and performance of a thorough examination of the existing plant fire protection licensing basis (including circuit analyses) involving millions of dollars and several years of effort.

Because the positions in this proposed generic letter would have a major and unnecessary impact on both the licensees and the NRC, we recommend that it be withdrawn. Existing licensing bases provide a high level of safety as well as compliance, and the existing risk-informed inspection, self-assessment, and corrective action approaches already provide a useful mechanism for finding and fixing any risk-significant circuit failure combinations. Additional generic communications to redefine compliance serve no purpose.

Use of Experimental Evidence to Redefine Plant Licensing Bases

The NRC indicates in several places in the FRN (70 FR 60859) that its view of compliance is supported by the results of the EPRI/NEI fire-induced circuit failure testing:

- “....the cable functionality fire testing demonstrated that multiple spurious actuations can occur.... Therefore, if a licensee does not account for multiple spurious actuations in their circuits analysis, they are not in compliance....”
- “Based on the new information provided by the EPRI/NEI cable fire tests, approved fire protection programs that do not include protection against possible multiple spurious actuations.....may not comply with these regulatory requirements.”
- “The 2001 EPRI/NEI fire tests clearly showed.... Consequently, to demonstrate compliance...”
- “New information from the ...tests has shown that multiple, simultaneous spurious actuations must be considered for licensees to be in compliance....”

Compliance with the circuit failure regulations is defined by plant-specific licensing bases built up over many years from regulations, regulatory guidance, and docketed positions accepted by NRC, not by new experimental evidence (note that an alternative view of this evidence is provided in the enclosure). The

NRC is using the "new evidence" from the NEI/EPRI circuit failure tests to justify this interpretation of what is required for compliance, an interpretation that is different from most plant licensing bases. The NRC is also using a Generic Letter applicable to all plants to impose this position on the industry. These facts suggest that this is a new regulatory position. To now use recent experimental evidence to justify a new regulatory position would normally require demonstration of a substantial increase in protection and justification of costs as required by the backfit rule, 10 CFR 50.109.

Instead, the "Backfit Discussion" in the FRN concludes that the information requested by the proposed Generic Letter is considered a compliance exception to the backfit rule, in accordance with 10 CFR 50.109(a)(4)(i). This portion of 10 CFR 50.109 states,

"(4) The provisions of paragraphs (a)(2) and (a)(3) of this section are inapplicable and, therefore, backfit analysis is not required and the standards in paragraph (a)(3) of this section do not apply where the Commission or staff, as appropriate, finds and declares, with appropriate documented evaluation for its finding, either:

(i) That a modification is necessary to bring a facility into compliance with a license or the rules or orders of the Commission, or into conformance with written commitments by the licensee...."

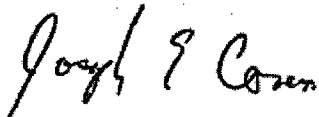
The appearance here is that the compliance exception to the backfit rule is being applied only because the imposition of this new position could not pass the cost-benefit test that would otherwise be required. This application of the compliance exception requires an "appropriate documented evaluation for its finding." The NRC does not provide in this FRN evidence that multiple simultaneous spurious actuations constitute a safety issue, only that they are possible. In fact, licensees who have evaluated the risk impact of potential multiple spurious actuations have determined that they are generally of very low safety significance. The assertion in the notice that, "Based on new information... may not comply with these regulatory requirements." is clearly a new staff position, even though the backfit discussion asserts otherwise. Therefore, the NRC has not provided an appropriate evaluation supporting the application of the compliance exception.

In conclusion, the proposed Generic Letter imposes a significant and unnecessary burden on licensees with little, if any, definitive safety benefit. It is wholly inappropriate to take a regulatory position that will, for all practical purposes, result in extensive new analyses and impose new design requirements via Generic Letter. The BWROG does not believe that additional analyses or design changes are warranted without substantial evidence that they are necessary to correct safety issues. Furthermore, any such changes should be imposed by formal rulemaking rather than by a request for information in a Generic Letter.

BWROG-06005
February 6, 2006
Page 4

If you have any questions about these comments, please contact me at 734-586-1960 or Fred Emerson at 910-675-5615.

Sincerely,

A handwritten signature in black ink, appearing to read "Joseph P. Conen". The signature is written in a cursive, slightly slanted style.

Joseph Conen
BWR Owners' Group Chairman

cc: Mr. Gary Holahan, NRR
Mr. James Lyons, NRR
Mr. Sunil Weerakkody, NRR
Mrs. Michelle Honcharik, NRR
BWROG Primary Representatives
NRC Document Control Desk

**Specific Comments on
"Post-Fire Safe-Shutdown Circuit Analysis Spurious Actuations" (70 FR 60859)**

1. The FRN states that the EPRI cable fire tests showed a high probability of spurious actuations. Although this is partially true, it is an incomplete assessment of the test results. What is actually true of the tests is that they showed a relatively high probability of spurious actuations given that the cable was actually damaged by fire. Fire damage for those cables most commonly used in the industry (having thermoset insulating material) did not occur until the cable reached very high temperatures. For the tests performed, cable temperatures generally did not reach this level for at least 30 minutes. Additionally, once the hot shorts did occur, their duration was generally very brief and they ended with a short to ground.

Applying these facts about the tests results to a typical BWR yields the following results:

- Typical BWR Configuration: BWR Reactor Buildings are typically constructed with high ceilings and with suppression systems in those plant areas where a combustible threat exists. BWRs are also constructed with a level of divisional separation consistent with Regulatory Guide 1.75.
- Typical BWR Current Circuit Analysis Approach: With respect to the current postfire safe shutdown circuit analysis, multiple spurious actuations have already been addressed by most BWRs. As was outlined in the Guidance Document for Post-Fire Safe Shutdown Analysis submitted to the NRC in 1999, most BWRs have evaluated each conductor in each safe shutdown circuit for the effects of a hot short, a short-to-ground or an open circuit. Each of these effects is addressed on an individual basis. The difference between the industry approach and the NRC's current position in the proposed generic letter is that the industry was not required to address the combination of the effects during the original analysis and was not inspected to that criterion.

This approach was accepted by NRC in several cases and SERs were provided. While this does not constitute regulatory acceptance for the industry as a whole, the fact that NRC accepted several cases of an approach used widely in the industry indicates that compliance with the regulations could be achieved with this approach. Therefore, current regulatory views that this is noncompliant indicate a change of NRC staff position.

- Alternative Assessment of Test Results on a Typical BWR: For a typical BWR with high ceilings and suppression installed, fire temperatures at the location of safe shutdown circuits would not be expected to exceed 175° F without actuating the installed suppression systems. Therefore, widespread circuit damage would not be expected. For areas without suppression, fire detection (installed in most areas) provides early warning and adequate response to render the fire threat low enough to prevent significant cable damage.

Therefore, the expected fire damage would be localized and incapable of generating sufficient heat to damage installed cables. As a measure of defense-in-depth, the current approach to post-fire safe shutdown would have addressed the effects of any impacts individually, regardless of the limited likelihood of actual occurrence. In the event that two circuits with the potential to act in combination in a way that could lead to an undesirable and unrecoverable condition were installed in the same fire area, the

likelihood of them both spuriously actuating as a result of the same fire is low. Even if fire spread were to occur between the two circuits, there would be sufficient time for response by the site fire brigade and for mitigative actions in accordance with established procedures.

Therefore, when results are applied in the context of an actual plant environment, the tests support our view that the circuit analysis assumptions currently employed by a typical BWR are adequate to provide a low level of plant risk. Recent PRA evaluations of the risk impact of such combinations generally confirm this.

2. NRC discounts the industry position on "one-at-a-time," as stated in an NEI letter of May 30, 1997, based on a position stated in a 1982 NRC letter from Dennis Crutchfield to P.B. Fiedler. First, an NRC letter to a licensee is not an appropriate mechanism for conveying a staff position of generic applicability. Second, this justification was not made widely known until the publication of the current FRN (70 FR 60859).

In addition, the NRC states that the May 30, 1997, NEI letter offered no assessment of the safety significance of multiple sequential and cumulative failures to support its contention that such failures were low significance. This is true, but pilot PRA studies performed later did demonstrate that such failures were of low significance, as noted above.

3. The arguments NRC uses to support the issuance of this proposed generic letter are frequently based on a single interpretation of the available information. One example of this was the consideration of experimental evidence discussed in Comment 1 above. Other examples include:
 - a. Arguments that compliance will be enhanced through issuing this generic letter ignore the fact that licensees have been complying (as measured by licensing submittals and inspections) with their licensing bases for many years prior to the emergence of fire-induced circuit failures as an issue in the 1996 timeframe. Since the plant licensing bases have changed little in the last twenty years, it is difficult to see why plants are suddenly not in compliance.
 - b. Arguments that plants can resolve circuit failure issues through adopting NFPA 805 ignore the fact that transition to a new methodology will take significant time and require extensive use of limited resources.
 - c. Arguments that plants not adopting NFPA 805 can submit risk-informed exemption requests ignore the unnecessary burden this will place on NRC staff and industry alike. Numerous exemption requests for multiple circuit failures would have to be submitted by each plant in order to come into compliance as defined in this Generic Letter. We expect that most of these will be demonstrated to have very low risk significance. It is likely that many hundreds of such exemption requests would be necessary, and it is very difficult to see how the processing of these low significance requests will further the health and safety of the public.
4. The last paragraph on page 4 of the GL-2005-XX states that the "industry had long claimed that spurious actuations were not credible". This is not the case for BWRs as noted in the 1999 BWR SSA submittal. As noted above, BWRs have always considered the potential for spurious actuation in their analyses. The major departure from the current staff position is that the latter includes the consideration of all spurious actuations occurring simultaneously for a given fire.

In addition, the EPRI/NEI tests were conducted in an effort to determine the likelihood of spurious actuations under fire conditions more severe than those likely to occur in power plants. These tests would not have been conducted if the industry actually believed that fire-induced spurious actuations were not credible.