D. R. Woodlan, Chairman
Integrated Regulatory Affairs Group
P.O. Box 1002, Glen Rose, Texas 76043

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Dated October 19, 2005

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Chief, Rules and Directives Branch
Division of Administrative Services
Office of Administration
U.S. Nuclear Regulatory Commission
Mail Stop T6–D59
Washington, DC 20555–0001

**STRATEGIC TEAMING AND RESOURCE SHARING (STARS)**
**COMMENTS ON PROPOSED GENERIC COMMUNICATION**
**Post-Fire Safe-Shutdown Circuit Analysis Spurious Actuations**
**(70 FR 60859, Dated October 19, 2005)**

Dear Sir or Madam:

The Strategic Teaming and Resource Sharing Alliance (STARS)[1] appreciate the opportunity to provide comments on the proposed generic communication, "Post-Fire Safe-Shutdown Circuit Analysis Spurious Actuations." STARS has been working with the Nuclear Energy Institute (NEI) to develop and provide comments to you regarding this proposed generic communication. As you are aware, NEI has submitted a request to extend the public comment period for this action by 45 days (NEI letter, A. Marion, NEI, to Chief, Rules and Directives Branch, NRC, "Proposed Generic Communication: Post-Fire Safe-Shutdown Circuit Analysis Spurious Actuations, 70 FR 60859, October 19, 2005," dated December 01, 2005). STARS supports this request and believes that the additional time is essential to the adequate preparation and submission of industry comments.

STARS respectfully submits the comments provided below and in the Enclosure to this letter regarding this proposed generic communication. STARS may submit additional comments at a later date depending on the information and comments developed by NEI.

[1] STARS is an alliance of six plants (eleven nuclear units) operated by TXU Power, AmerenUE, Wolf Creek Nuclear Operating Corporation, Pacific Gas and Electric Company, STP Nuclear Operating Company and Arizona Public Service Company.

SDSP Review Complete
E-RIDS = ASM-03
R. Wolfgang (RSW1)



Template = ASM-013
Add = A. Markley (AWM)
C. Patel (CPP)

The proposed generic communication is predicated on 2001 Electric Power Research Institute (EPRI)/NEI fire tests data (EPRI Report Number 1006961, "Spurious Actuation of Electrical Circuits due to Cable Fires: Results of Expert Elicitation," dated May 2002, and NUREG/CR-6776, "Cable Insulation Resistance Measurements Made during Cable Fire Tests," dated June 2002). The fire tests included a number of different cable types and configurations, with the test results being dependent on these factors. The proposed generic communication uses these varied results to make the broad, all-encompassing conclusion that all cables, regardless of type, configuration, and installation will fail, resulting in multiple, spurious actions that occur simultaneously or in rapid succession. The proposed generic communication should be revised to recognize that various cable types, configurations, and installation will have a direct affect on the time-to-failure and failure modes of the cables. The proposed generic communication should also recognize the fact that there is time to react to fire events for certain cable types, and that multiple, spurious actuations occurring simultaneously or in rapid succession are unlikely for these types of cables, configuration, and/or installations prior to taking such actions. In addition, risk-informed criteria, similar to that provided in Regulatory Issue Summary 2004-03, Revision 1, "Risk-Informed Approach for Post-Fire Safe-Shutdown Circuit Inspections," and NEI 00-01, "Guidance for Post-Fire Safe Shutdown Circuit Analysis," should be provided in the proposed generic letter to address the number and types of multiple, spurious actuations that occur simultaneously or in rapid succession that must be considered.

STARS continues to be concerned about the current staff position that risk insights and tools cannot be used as the basis to make changes to the approved fire protection program for those plants whose licensing basis is established on a deterministic approach, unless the licensee chooses to adopt the risk-informed option provided in 10 CFR 50.48. This position appears to be contrary to the direction of the Commission to move to risk-informed regulation and the use of risk insights and tools in day-to-day plant operations and decision making processes. In addition, this position appears to represent regulation through interpretation (particularly for those plants that have the standard license condition), versus regulation promulgated through the rulemaking or other processes that allow for public participation and stakeholder comment resolution.

For plants licensed on or after January 01, 1979, the standard license condition allows licensees to make changes to the fire protection program provided that the ability to achieve and maintain safe shutdown is not adversely affected by the changes. The use of risk-informed approaches should be an acceptable approach for determining whether or not an activity is "adverse." Obviously, these approaches must be based on sound principles and available regulatory guidance, such as that provided in Regulatory Guide (RG) 1.174, "An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to the Licensing Basis," and RG 1.187, "Guidance for Implementation of 10 CFR 50.59, Changes, Tests, and Experiments," which endorses Nuclear Energy Institute 96-07, Revision 1, "Guidelines for 10 CFR 50.59 Implementation." The approaches used by the licensee would be subject to NRC review and inspection.

The supposition that the use of risk-informed approaches as the basis for fire protection program changes is "adverse" has no demonstrated basis in fact. Risk-informed approaches are used throughout the industry for a multitude of different purposes, including serving as the basis for making a change to the licensing basis. Risk-informed approaches should not be treated any

differently in the area of fire protection than they are in other areas were these approaches are used. The use of risk information is becoming increasingly important to both the regulator and licensees - there should not be a prohibition to the use of risk information as it pertains to fire protection, regardless of whether or not the licensee's established fire protection plan is based on deterministic approaches. STARS encourages the NRC and industry to develop guidance for using established risk-informed approaches that would meet the standard license condition for making changes to an approved Fire Protection Program.

STARS also believes that the backfit discussion provided in the proposed generic communication may be inadequate or incomplete. STARS does not disagree that one train must be free of fire damage, or that spurious actuations must be considered. The issue is how analyses of spurious actuations are to be treated, i.e., "any-and-all, one-at-a-time" versus "multiple, spurious actuations occurring simultaneously or in rapid succession." Clearly, the regulatory interpretation of this treatment has changed, and the backfit analysis should evaluate this change in interpretation. In addition, the risk associated with these types of failures should be addressed, as well as any perceived cost-benefit that may be obtained. The proposed generic communication, including the backfit discussion, is silent on the robustness of nuclear power plant fire protection programs. These robust programs minimize the risk, frequency, and severity of potential fire events by providing measures for early detection and suppression. The strength of these programs should be credited in the backfit analysis. STARS believes that the overall risk benefit that may be gained by considering credible multiple, spurious actuations which may occur simultaneously or in rapid succession will be small, especially when coupled with the other conservative assumptions used in the analyses. The costs associated with performing the additional analysis will be significant. In addition, considerable expenditure of licensee and NRC resources may be required to address potential spurious actuations that are risk-insignificant through the exemption and license amendment processes.

The proposed generic communication states that the information requested by this communication is a compliance exception to the rule in accordance with 10 CFR 50.109(a)(4)(i). STARS questions the basis for this determination as being directed by the regulations as they have been applied. In fact, there is considerable evidence to the contrary, both in how the NRC has reviewed and approved existing Fire Protection Programs and in the regulatory guidance that has been provided to date. The compliance exception should be invoked only in those limited circumstances of discovery of a true non-compliance condition, not when the staff changes the regulatory position or interpretation for how compliance with the applicable regulations is to be achieved.

STARS encourages continued open dialog between key stakeholders and the NRC regarding fire protection issues. STARS appreciates the opportunity to comment on this proposed generic communication. If there are any questions regarding these comments, please contact me at 254-897-6887, or dwoodla1@txu.com, or Rodney Wilferd at 623-393-5744, or rwilferd@apsc.com.

Sincerely,

D. R. Woodlan, Chairman
Integrated Regulatory Affairs Group
STARS

Enclosure

# Enclosure to STARS 05016

# Comments on Proposed Generic Communication: "Post-Fire Safe-Shutdown Analysis Spurious Actuations"

# (70 FR 60859)

The STARS Alliance respectfully submits the following comments:

1. The use of risk insights and tools should not be prohibited for plants that have a deterministic-based licensing basis. This prohibition is contrary to the Commission's direction of moving to risk-based regulation and the use of risk insights and tools in day-to-day plant operations and decision making processes. In addition, this position appears to represent regulation through interpretation (particularly for those plants that have the standard license condition), versus regulation promulgated through the rulemaking or other processes that allow for public participation and stakeholder comment resolution.

   This position is also inconsistent with the guidance provided in Regulatory Issue Summary 2004-03, Revision 1, "Risk-Informed Approach for Post-Fire Safe-Shutdown Circuit Inspections," and the NRC Fire Protection Significance Determination Process (FPSDP). The RIS and FPSDP imply that the use of risk is an acceptable approach to addressing fire protection issues. The staff should fully apply this approach to all fire protection issues, including providing licensees with deterministic-based licensing bases with the flexibility to use risk information. This is particularly important for plants that have the standard license condition where licensees may make changes to the approved Fire Protection Program provided that the ability to achieve and maintain safe shutdown is not adversely affected.

   Risk thresholds have been established in regulatory guidance to provide a threshold where a change, or in this case, an existing condition is now considered a change (based on new fire test data information discussed in the proposed generic communication) is not considered risk significant. For example when evaluating the impact of a change on the probability of an increase in an accident, NEI 96-07, "Guidelines for 10CFR50.59 Implementation" (endorsed by the NRC) established a change in CDF of < 10E-6 as an acceptable threshold for licensees to make changes to their plant without prior NRC approval. In Regulatory Guide 1.174, "An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant Specific Changes to the Licensing Basis," the NRC established criteria for an acceptable risk increase. STARS proposes that the criteria provided in RG 1.174 could be used by licensees as an appropriate threshold to evaluate a condition involving multiple, spurious actuations, including those that occur simultaneously or in rapid succession, as being not risk-significant and being acceptable under the provisions of the fire protection program, or determining if a proposed change to the fire protection program is "adverse."

2. STARS acknowledges the NRC's effort to clarify the regulatory requirements based on the information developed from the 2001 EPRI/NEI cable fire tests. In addition, where a multiple, spurious actuation that occurs simultaneously or in rapid succession is determined to be risk significant, corrective action (e.g., plant modification, license amendment, etc.) should occur to assure that safe shutdown can be achieved. However, where a multiple, spurious actuation condition is determined to not be risk significant, it is a significant burden on both the licensee and NRC to process a licensing amendment when the condition does not have an adverse impact on the ability to achieve and

maintain safe shutdown. Licensees should be able to apply the guidance provided in RIS 2004-03, Revision 1, to "bin" the non-conformances. Enforcement discretion should be applied to those non-conformances that are not risk-significant, and these minor non-conformances should be identified in a licensee controlled document, such as the Updated Final Safety Analysis Report or licensee Fire Hazards Analysis Report.

3. The proposed generic communication states that licensees may not be in compliance with 10 CFR 50.48 and 10 CFR 50, Appendix A, General Design Criterion (GDC) 3. It later makes the assertion in the last paragraph of the "Discussion" section that licensees who do not account for multiple, spurious actuations in their circuit analysis are not in compliance with 10 CFR 50.48 and 10 CFR 50, App. A, GDC 3. There are at least three issues associated with these statements:

    a. These statements essentially invalidate the current licensing basis for plants that may not consider multiple, spurious actuations, and/or plants that consider multiple, spurious actuations taken one-at-a-time, regardless of the level and detail of the documented, previous NRC review and approval of the existing fire protection programs and licensing basis for these licensees.
    b. The stated purpose of this proposed generic communication is to confirm compliance with the applicable regulatory requirements. Licensees currently meet the applicable regulatory requirements, as evidenced by their existing licensing bases. The new regulatory position of how these requirements are to be met is a backfit that should be evaluated as such, and it may represent a new position that should have been promulgated through more appropriate processes, such as rulemaking, that offer the opportunity for public participation and comment.
    c. These statements are inconsistent in that one statement states that "it may be possible" that a licensee is not in compliance, while the other statement clearly indicates that licensees that do not account for multiple, spurious actions "are not in compliance." STARS recommends that such statements be revised to reflect that licensees may not be in compliance.

4. The proposed generic communication states that the 2001 EPRI/NEI cable fire tests demonstrated that multiple, spurious actuations that occur simultaneously or in rapid succession are credible. The proposed communication does not discuss the timing of these actuations or the cable types that are involved. The EPRI test report referenced in the proposed generic communication indicates that the average time to failure for thermoset cables was 46.3 minutes. The longest and shortest times to spurious actuation for thermoset cable were 85.7 minutes and 14.0 minutes, respectively. There is a reasonable likelihood that appropriate mitigative measures can be taken prior to cable failure. The proposed generic communication should be revised to recognize that various cable types, configurations, and installation will have a direct affect on the time-to-failure and failure modes of the cables. The proposed generic communication should also recognize the fact that there is time to react to fire events for certain cable types, and that the impact of multiple, spurious actuations occurring simultaneously or in rapid

succession can be minimized or prevented by appropriate mitigative measures and actions.

5. Nuclear power plant fire protection programs are robust. These programs provide for the early detection and suppression of potential fire events, particularly in areas where safety-related equipment could be damaged. In addition, generally-accepted engineering practices control the routing of cables, including cable type, configuration, and installation practices, such as tray fill and separation. These programs and practices ensure that deep-seated fire events are unlikely. Therefore, a fire event will most likely be detected and suppressed during the early stages of the event. The generic communication should account for these programs and practices, and provide consideration for the test data that demonstrate that certain types of cables, such as thermoset cable, do not experience immediate failures. Therefore, there is time to respond to a fire event once the fire is detected before multiple, spurious actuations need to be considered.

6. NRC Management Directive 8.4, "Management of Facility-Specific Backfitting and Information Collection," states the following objective regarding backfits:

   "To ensure that NRC-licensed facilities provide adequate protection of the public health and safety and common defense and security, and allow for substantial improvements in either safety or security, beyond adequate protection, while avoiding any unwarranted burden on NRC, the public, or licensees when implementing such backfits."

   The backfit discussion does not meet this objective in that it does not demonstrate a substantial improvement in safety or security beyond adequate protection. In addition, it does not recognize the potential burden, particularly on the NRC and licensees, of the proposed generic communication and the new staff position being imposed therein. The proposed generic communication may result in substantial re-analyses of a licensee's established fire protection program, require extensive modifications to the facility, and may result in a significant number of exemption or license amendments requests (including requests to adopt 10 CFR 50.48(c)), all to address risk-insignificant issues where adequate protection of the public health and safety already exists.

7. RIS 2004-03, Revision 1, provides guidance regarding the types and number of cable failures that should be considered. The proposed generic communication does not provide similar guidance, but implies that all failures should be considered. In addition, existing licensee fire hazards analyses (FHA) usually assume that all circuits fail within the fire area of concern. While this may be a very conservation assumption that was well-suited to the existing FHA, this assumption may become unrealistic if all intra- and inter-cable interactions are to be considered. This assumption is also unrealistic in that cables that are physically separated will not interact during a fire event. In addition, the test data also demonstrates that inter-cable interactions within the same cable tray are dependent on cable type and tray fill. The proposed generic communication should be revised to include guidance on how intra- and inter-cable interactions are to be assessed. This guidance should be consistent with that provided in RIS 2004-03 and NEI 00-01,

"Guidance for Post-Fire Safe Shutdown Circuit Analysis." Additional guidance should also be provided to account for the critical characteristics that have been identified in the EPRI/NEI report and NUREG/CR-6776, "Cable Insulation Resistance Measurements Made During Cable Fire Tests."

8. NEI 00-01, "Guidance for Post-Fire Safe Shutdown Circuit Analysis," provides detailed guidance for how post-fire safe shutdown circuit analyses are to be performed. Similar to RIS 2004-03, Revision 1, this guidance also provides information regarding how multiple, spurious actions are to be addressed. NEI 00-01 also provides criteria for using risk insights. The proposed generic communication should be revised to endorse the use of NEI 00-01, without exception, as an acceptable means for performing circuit analyses, including addressing multiple, spurious actuations that occur simultaneously or in rapid succession and the use of risk insights.

9. The proposed generic communication is unclear as to what regulation it applies to when considering 10 CFR Appendix R, III.G. Does this new regulatory position (multiple, spurious actuations occurring simultaneously or in rapid succession) apply to III.G. 2 and III.G.3? The regulatory guidance for III.G.3 areas clearly indicates that multiple, spurious actuations that occur simultaneously need not be considered. If this position applies to III.G.3, then a full backfit analysis should be performed. In addition, if this position does not apply to III.G.3 areas, then why must it be applied to III.G.2 areas, particularly in view of the fact that IIII.G.2 fires are not as severe as those considered for III.G.3 areas?

10. "Requested Actions" and "Requested Information" – the 90-day time period for the responses is arbitrary, and it may not allow sufficient time for licensees who may be affected by this issue to adequately respond and provide the requested information. Depending on the extent of condition and the proposed corrective action(s), it may take a licensee a significant amount of engineering and support resources to perform the operability determinations, take appropriate compensatory measures, and to design, schedule, and implement the corrective action solution(s), and/or apply for a license amendment or exemption. STARS recommends extending the response period for Requested Actions (2) and (3), and Requested Information (2), including all sub-parts, to a mutually agreeable time frame so that an adequate and complete response may be developed by the licensee.

    The NRC staff should work with the industry during the public comment resolution process to develop a response time period that balances the safety significance and risk of the issue with providing licensees with sufficient time to provide a complete and adequate response.

11. The statements "multiple spurious actuation(s)" and "multiple spurious actuations that occur simultaneously or in rapid succession" appear to be used interchangeably throughout this document. Clarification should be provided to clearly distinguish between the two phrases, since each phrase has a very specific meaning that differs

greatly for how these phrases are to be treated in the post-fire safe shutdown circuit analyses.

12. The fifth sentence of the first paragraph of the "Discussion" section states that "However, current NRC regulations only allow these interpretations with respect to the design of alternate shutdown capability." In STARS opinion, the NRC interpretation that this statement applies only to alternate shutdown capability may be incorrect, and licensees may have a differing view. Each safety evaluation report must be reviewed to determine how these interpretations were applied to each plant.

    Regardless of how the interpretation is applied, this paragraph continues on to state "Therefore, these interpretations do not ensure safe shutdown." This is a broad, all-encompassing statement that is made based on specific, limited fire test results. This statement does not take into consideration the specific analyses that were performed, nor does it account for actual plant configurations and fire detection and suppression design features. To simply state that safe shutdown is not ensured due to the consideration of one assumption is misleading at best. This statement should be deleted in its entirety, or be revised to reflect that a licensee's existing analyses may not be sufficient to demonstrate that safe shutdown is ensured.

13. The general categorization that all circuit analyses that do not consider multiple, spurious actuations, including those that may occur simultaneously or in rapid succession, are inadequate, is not based on demonstrated fact. NEI 00-01 and RIS 2004-03 recognize that circuit analyses are dependent on a number of factors, including cable type. The proposed generic communication should be revised to reflect these additional considerations and to eliminate the broad-based sweeping generalizations of this proposed new regulatory position.

14. The fifth paragraph of the "Discussion" section includes the statement "All plants must review their circuit analysis, assuming possible multiple spurious actuations occurring simultaneously from a fire." No further guidance is provided on how this expectation is to be met. In addition, this expectation disregards the fire tests data that demonstrates that other considerations should also be included in the analysis, such as cable type and tray loading/configuration. The proposed generic communication should be revised to include the guidance provided in NEI 00-01.

15. "Methods of Compliance" – this section implies that the risk-informed approach guidance provided in Regulatory Guide 1.174 is an acceptable method for providing the basis of an exemption request. The second bullet states that plants licensed after January 01, 1979 can not use a risk-informed approach without applying for a license amendment. This treatment of risk insights is inconsistent, with the sole determining factor appearing to be dependent on who has right-of-approval. The NRC recognizes RG-1.174 as an approach that provides acceptable methods. The standard license condition delegates certain aspects of right-of-approval to the licensee, provided that certain conditions are met. Therefore, licensees with the standard license condition should be able to review and accept changes using the same methods that are acceptable

to the NRC staff for other licensing actions, provided that the ability to achieve and maintain safe shutdown is not adversely affected.

16. "Requested Actions" – The second sentence of Item (1) does not provide relevant information. STARS recommends deleting this sentence and replacing it with a sentence that provides specific guidance, similar to that provided in NEI 00-01, for performing these assessments.

17. "Backfit Discussion," paragraph beginning with "The 2001 EPRI/NEI fire test program," third sentence – this sentence includes the phrase "and with licensees' licensing basis." This phrase, when taken in the context of this statement may be inaccurate. As stated in the proposed generic communication, a licensee's existing licensing basis may allow for a single spurious actuation, or multiple, spurious actuations taken one-at-a-time, for certain analyses, which may, or may not be, interpreted to pertain only to alternate shutdown capability (see Comment 12). In addition, the regulatory position stated in the proposed generic communication could represent a new compliance strategy for most plants. Therefore, their existing licensing basis may not consider multiple, spurious actuations, or multiple, spurious actuations that occur simultaneously or in rapid succession. This phrase should be deleted from this sentence.

18. "Applicable Regulatory Guidance" – this section refers to Draft Regulatory Guide DG-1139, "Risk-Informed, Performance-Based Fire Protection for Existing Light-Water Nuclear power Plants," as being an acceptable method for performing evaluations. It is inappropriate to reference a draft document that is subject to change prior to receiving final NRC approval. This reference should be modified to state that the techniques described in this document may be used when final approval is received, or include a provision that acknowledges the risk that the document is subject to change, and that licensees who choose to use this information do so at their own risk.

19. "Requested Information," Item (2)(a) – The reference to Generic Letter 91-18, Revision 1, is incorrect. Generic Letter 91-18 has been superseded in its entirety by Regulatory Issue Summary 2005-20, Revision to Guidance Formerly Contained In NRC Generic Letter 91-18, "Information to Licensees regarding Two NRC Inspection Manual Sections on Resolution of Degraded and Nonconforming Conditions and on Operability," dated September 26, 2005.

20. The references to "10 CFR Part 50, General Design Criterion (GDC) 3" are not complete. STARS suggest providing the complete reference to this criterion on the first instance (10 CFR Part 50, Appendix A, General Design Criterion 3), and correcting all subsequent references to "10 CFR 50, App. A, GDC 3."

21. The references to "10 CFR 50.109(a)(4)(I)" appear to be incorrect. The correct reference should be "10 CFR 50.109(a)(4)(i)."