

PUBLIC COMMENTS AND NRC RESPONSES
DRAFT REGULATORY ISSUE SUMMARY 2005-XXX
CLARIFICATION OF POST-FIRE SAFE-SHUTDOWN CIRCUITS

The following comments were submitted during the public comment period for the subject RIS. The comments have been summarized from the original and each comment is followed by the NRC's response. These comments/responses were originally handed out in a public meeting on August 16, 2005 and discussed. Some of the responses have been changed based on the discussion during that meeting and on subsequent internal NRC comments.

NEI COMMENTS

1. **Comment:** We request NRC acknowledgment that NEI 00-01 provides an acceptable approach of deterministic and risk-informed methods. We offer the following matrix regarding resolution of possible inspection findings for consideration:

Type of Issue	Action to Address Issue	
	Risk Significant	Not Risk Significant
Finding (issue outside CLB)	Address in CAP	Green finding; action at licensee's discretion
Violation of CLB	Address in CAP	Address in CAP or request exemption/deviation
Compliance status/CLB not clear	Address in CAP	Address in CAP or request exemption/deviation

(CLB – Current Licensing Bases, CAP – Corrective Action Program)

Response: The RIS does acknowledge that NEI 00-01 provides an acceptable approach of deterministic and risk-informed methods, when applied in conjunction with the guidance provided in the RIS. The RIS states the following:

The deterministic methodology in Chapter 3 of NEI 00-01 for analysis of post-fire safe-shutdown circuits, in conjunction with the guidance provided in this RIS, is one acceptable approach to performing post-fire safe-shutdown circuit analyses. The risk significance analysis methodology provided in Chapter 4 and Appendix B of NEI 00-01 should only be applied where an NFPA 805 licensing basis has been adopted in accordance with 10 CFR 50.48(c) or to support exemption requests for plants that have not adopted an NFPA 805 licensing basis. Furthermore, regardless of the plant licensing basis, the NRC endorses the NEI 00-01 guidance that “all failures deemed to be risk significant, whether they are clearly compliance issues or not, should be placed in the plant Corrective Action Program with an appropriate priority for action.”

The matrix provided by NEI for resolution of possible inspection findings for consideration is acceptable with one exception: An issue that is within the CLB but not in compliance with regulatory requirements must also be addressed.

2. **Comment:** Mandatory any-and-all inspections would result in a large and inappropriate expenditure of industry and NRC resources just to deal with exemption requests on low significance circuit failure issues.

Response: RIS 2004-03, Revision 1, "Risk-Informed Approach for Post-Fire Safe-Shutdown Circuit Inspection" (ML042440791) has been issued to address this concern with respect to inspections.

Licensees are expected to maintain regulatory compliance in accordance with their fire protection program.

3. **Comment:** Most plant licensing bases include a "one-at-a-time" consideration of spurious actuations, consistent with guidance in Generic Letter 86-10. This consideration has been a point of disagreement between industry and NRC for several years, and remains so today.

Response: GL 86-10 does not allow a "one-at-a-time" approach to circuit analysis for III.G.2 areas of the plant and the NEI/EPRI cable fire test program has demonstrated that such an approach is unrealistic and could potentially present an unacceptable level of risk.

4. **Comment:** The staff position with respect to the term "any-and-all" is not consistent with NEI 00-01, because the staff chooses to treat it separately from the "one-at-a-time" consideration for spurious actuations applied in circuit failure analyses. The NRC staff position on "any-and-all" is a new regulatory position that has significant impacts on the comprehensive safe-shutdown analyses that licensees are crediting.

Response: The term "any-and-all" refers to the number of circuit failures that must be considered when performing the post-fire safe-shutdown circuit analysis, whereas the term "one-at-a-time" refers to the assumed failure scenario. As explained in the RIS, the regulatory requirement to address multiple spurious actuations is not a new regulatory position (see, for example, 10 CFR 50 Appendix R; Collins letter of March 11, 1997). Furthermore, the validity of this long-held regulatory position has been demonstrated by the NEI/EPRI cable fire tests.

Since the NRC has, in the past, accepted the "one-at-a-time" approach to circuit analysis in a staff safety evaluation report and discussions with the industry, the clarification of regulatory requirements with respect to this issue may be considered a new staff position by some stakeholders. Consequently, this issue will be addressed in a generic letter. However, regulations do not allow this approach for analysis of fire-induced failure of redundant safe shutdown trains and the NEI/EPRI cable fire tests support the regulations by demonstrating that this approach is unrealistic and could potentially present an unacceptable level of risk.

5. **Comment:** It is inappropriate for NRC to declare a position and take a conservative position on the use of operator manual actions in this proposed Regulatory Information Summary (RIS) since there is a proposed rulemaking on this topic that has not yet been issued as final.

Response: Circuit inspections were resumed in January of this year and enforcement discretion for related findings is scheduled to be lifted at the end of this year. Consequently, it is important to clarify regulatory requirements with respect to circuit analyses at this time. A proposed rulemaking is not a basis for delaying clarification of current regulations, as a proposed rule is subject to change or withdrawal. In addition, inspection procedures have been revised to address the acceptability of operator manual actions as compensatory measures. The inspection guidance ensures that credited operator manual actions are adequate and provides licensees with an approach to compliance with current regulatory requirements.

6. **Comment:** The section of the proposed generic communication addressing “emergency control station” discusses internal NRC memoranda and use of operator manual action. This section provides new regulatory positions that need to be addressed through the public comment and rulemaking processes.

Response: The RIS did not take a position with respect to what constitutes an acceptable emergency control station since the regulations are not specific in this regard and we did not consider this RIS to be an appropriate document to address this issue. One of the internal memoranda referred to in the comment provides a definition of manual actions that many licensees have embraced. The RIS does not take issue with that definition.

As explained in the RIS, the purpose of the section on emergency control stations is to address claims of licensees that a III.G.2 area can be considered a III.G.1 area by crediting operator manual actions at manual control stations. The NRC is using this RIS to address this misinterpretation of the rule by some licensees.

7. **Comment (Summary):** In conclusion, we believe the generic communication contains new NRC interpretations that take the form of new regulatory positions. We recommend this communication not be issued until the NRC staff completes the appropriate regulatory analysis required by 10 CFR 50.109, Backfitting.

Response: As we have stated, the staff does not believe it has taken any positions in this RIS that are inconsistent with any existing staff position or regulatory interpretation or requirement. In addition, the staff has reviewed stakeholder comments with the Committee to Review Generic Requirements (CRGR) with respect to backfitting. The CRGR concurs that the staff positions are not a backfit.

PROGRESS ENERGY COMMENTS

1. **Comment:** This RIS should not be issued since it is in direct conflict with the industry position on the acceptability of manual actions as provided by stakeholder comments related to the proposed manual action rule change. For example, “Associated Circuits” Section B states that “...operator manual actions may not be credited for such (associated) circuits.” This is a new interpretation from the perspective of the industry stakeholders and has been commented on under the proposed manual action rule change.

Response: The RIS re-affirms and clarifies the staff’s interpretation of NRC regulatory requirements that have been misinterpreted or incorrectly applied by the industry. Also see

Response to NEI Comment No. 5.

2. **Comment:** All references to manual actions in this draft RIS should be removed.

Response: See Response to NEI Comment No. 5.

3. **Comment:** This RIS should also not be issued without addressing the “one-at-a-time” portion of the “any-and-all” statement.

Response: See Response to NEI Comment No. 4.

4. **Comment:** The RIS interchanges terms without defining whether there are, or are not, differences (e.g., the Associated Circuits section discusses “any-and-all cables” where the Any-and-All section uses “any-and-all spurious actuations”).

Response: The final RIS will make it clear that the staff does not intend to distinguish between these two terms. Cables whose fire induced failure could cause spurious actions that could prevent safe shutdown should be protected from the effects of fire.

5. **Comment:** Manual actions are not prohibited by III.G.2. This is another example of why references to manual actions should be removed from the RIS, if it is issued.

Response: See Response to NEI Comment No. 5. It is a regulatory requirement that operator manual actions not be credited in III.G.2 areas, as re-affirmed by the operator manual action rulemaking process.

6. **Comment:** The Emergency Control Station section introduces a new NRC position relative to what constitutes an acceptable control station.

Response: See Response to NEI Comment No. 6.

7. **Comment:** Any-and-All Section B implies both safe shutdown credited equipment and non-credited equipment are in scope. Only failures that are credited should be included.

Response: The referenced section (and the entire RIS) applies to circuits whose fire-induced failure could impact safe shutdown. Safe shutdown in this context is hot standby or hot shutdown, as applicable. If fire-induced failure of a circuit can impact safe shutdown, the circuit should be protected, regardless of whether it is associated with credited or non-credited equipment.

8. **Comment:** Any-and-All Section B includes review of all possible combinations. Only the safety significant combinations should be included and addressed.

Response: See response to previous comment. Also see earlier discussion on a risk-informed approach to circuit analysis.

9. **Comment (Summary):** We urge the staff to reconsider the issuance of this RIS in that it duplicates other efforts, it introduces new NRC positions, and will complicate stakeholder

understanding of Fire Protection regulations.

Response: The RIS re-affirms and clarifies current regulations with respect to post-fire safe-shutdown analyses and does not duplicate other efforts. By reiterating the staff's expectations for compliance with regulatory requirements, the RIS should eliminate stakeholder uncertainty. The RIS does not introduce new staff positions, as explained above.

EPM COMMENTS

1. **Comment:** Rather than providing clarification and trying to achieve closure on fire protection issues, it appears that the NRC has re-written 10 CFR 50 Appendix R. There are numerous ambiguities within the existing fire protection regulations and guidance documents.

Response: As indicated by the numerous references to Appendix R and GL 86-10, the RIS is based directly on these documents. All of the NRC positions stated in the RIS are supported by statements of regulatory requirements in Appendix R and GL 86-10 and none of these positions are inconsistent with any regulatory requirements in Appendix R and GL 86-10. Furthermore, the NEI/EPRI cable fire testing program has confirmed that these regulatory requirements are necessary to protect the health and safety of the public. The RIS is being issued to eliminate apparent ambiguities in interpretation of these requirements by addressing the various industry interpretations of the regulatory requirements and clearly reiterating the staff positions which are supported by and consistent with the regulations and with all previous staff positions.

2. **Comment:** (a) There are numerous NRC documents that identify the "regulatory footprint" as requiring consideration of any and all, but one at a time. (b) The design basis for III.G.3 Alternate Shutdown capability has never included consideration of all potential spurious operations in a fire area concurrently. (c) Furthermore, one cannot recall an NRC audit finding within the last 20 years regarding the failure to consider all potential spurious operations in a fire area concurrently.

Response: (a) See Response to NEI Comment No. 4. (b) This RIS addresses the scope of circuit analyses only with respect to III.G.2 areas of the plant. The discussion in the RIS specifically excludes III.G.3 from the guidance. (c) Lack of enforcement or inconsistent enforcement of a regulation does not void that regulation, or constitute NRC approval of noncompliance with that regulation. Nor does lack of enforcement constitute a staff position with respect to a particular interpretation of a regulation. Prior to the 2001 NEI/EPRI cable fire testing, very little information was available regarding circuit failure during a fire, which made enforcement of NRC regulations in that area difficult. However, the 2001 testing program provided valuable information and data that demonstrated and confirmed the importance of these regulatory requirements and interpretations.

3. **Comment:** A more comprehensive definition is required to address "Manual Actions" and clarify the NRC position within the context of Section III.G. Does the latest NRC position on the requirements of III.G.2 prohibit the use of operator actions from the Main Control Room to reset spurious actuation signals?

Response: Protection should be provided in III.G.2 areas such that at least one safe shutdown train remains free of fire damage. If a spurious actuation prevents that train from performing its shutdown function, the train is no longer free of fire damage. The regulations do not permit the crediting of operator manual actions in III.G.2 areas to ensure that one train remain free of fire damage. However, an operator action in the control room credited for this purpose that is feasible and reliable would generally not be cited as a noncompliance.

4. **Comment:** Please provide a definition of what constitutes an acceptable "Emergency Control Station" as identified in Section III.G.1.a

Response: See Response to NEI Comment No. 6.

TVA COMMENTS

1. **Comment:** The definition of the term any-and-all appears to have no consequence or meaning without defining the term one-at-a-time.

Response: See Response to NEI Comment No. 4.

2. **Comment:** The accepted regulatory response to IN 92-18 was to ensure that the torque and limit switches were located in the circuit in such a way as to prevent damage to the valves so that subsequent "manual actions" to control the valves from their emergency response station would allow repositioning. These references to IN 92-18, in terms of the accepted response for the IN, appear to conflict with the position that no "manual actions" are allowed for Appendix R, III.G.2 equipment.

Response: The title of IN 92-18 is "Potential for Loss of Remote Shutdown Capability During a Control Room Fire". The control room fire is a unique fire scenario that is addressed in GL 86-10 (See GL 86-10 Response to Question 3.8.4 Control Room Fire Considerations). Manual actions outside the main control room would be expected in this situation and may be credited in the safe shutdown analysis.

3. **Comment:** Section 5.3 of RG 1.189 states the following: "Manual operation of valves, switches, and circuit breakers is allowed to operate equipment and isolate systems and is not considered a repair." For non-alternate/dedicated shutdown areas, Section 5.3 further implies that "manual operation of valves switches and circuit breakers" from either the control room or emergency control stations is acceptable. This appears to be contrary to the position that "manual actions" are not acceptable for all fire safe shutdown actions. Section 5.3 is not a subsection of Section 5.2 (alternate/dedicated) or Section 5.1 (redundant systems) of the regulatory guide.

Response: The staff acknowledges that the guidance provided in Section 5.3 of RG 1.189 (issued in April 2001) does not explicitly distinguish between III.G.2 and III.G.3 areas when discussing operator manual actions. However, as noted previously, operator manual actions may not be credited in III.G.2 areas. The reference to manual operation of valves,

switches and circuit breakers from either the control room or emergency control stations is applicable to III.G.1 areas. This will be clarified in the next revision to Regulatory Guide 1.189.

FRED EMERSON'S COMMENTS

1. **Comment:** The RIS, in “clarifying” existing requirements for circuit failure analysis in a very conservative manner, will serve only to greatly increase the burden of compliance and will result in a reduction in safety.

Response: The NEI/EPRI cable fire test program demonstrated that the non-conservative approach used by many licensees for analyzing circuit failures does not adequately address potential failures modes that could impact safety. The deterministic regulations applicable to post-fire safe-shutdown analysis are necessarily conservative in order to prevent all possible failures that could prevent safe shutdown. Also see Response to NEI Comment No. 2.

2. **Comment:** It is entirely appropriate to use risk-informed methods to select circuits for evaluation in self-assessments and inspections, using the guidance of RIS 2004-03 and NEI 04-06.

Response: The staff agrees that a licensee may use a risk-informed approach to the selection of circuits for evaluation in self assessments. However, for a deterministic fire protection program, a circuit that is not protected in accordance with the regulations and determined to be risk significant by the inspector, can be cited as a nonconformance.

3. **Comment:** The RIS creates the dichotomy that licensees must postulate and design for circuit failures in a conservative deterministic manner while the inspector can follow risk-informed guidance in conducting the inspections.

Response: The guidance provided in RIS 2004-03 enables inspectors to maximize the utilization of their limited resources by focusing their inspections on the potentially most risk-significant circuit configurations and materials. RIS 2004-03 provides guidance for inspectors and does not represent a determination on whether or not regulatory compliance is achieved. RIS 2004-03 does not address the full scope of possible circuit failures, some of which may have an impact on safety. It is the licensees' responsibility to ensure that all possible circuit failures that can impact safe shutdown are addressed. Ultimately, the regulations provide the basis for compliance, not RIS 2004-03. Licensees may be cited for noncompliances identified by the inspectors, whether or not they are within the guidance of RIS 2004-03.

4. **Comment:** In previous discussions with the NRC staff, they accepted Revision 1 of NEI 00-01 for use in conducting circuit analysis without additional qualification. Therefore the RIS qualification that NEI 00-01 deterministic methods are acceptable “in conjunction with the guidance in this RIS” is unnecessarily burdensome, as noted above, and inappropriate.

Response: During our review of NEI 00-01 the staff specifically requested that NEI remove guidance that contradicted the staff positions contained in this RIS. NEI was informed that we would be addressing these issues in a generic communication and no letter has been

issued by the NRC accepting NEI 00-01. NEI made note of this in NEI 00-01 (e.g., the

footnote in Appendix B which states, “NRC intends that a future generic communication will clarify associated circuits.”).

5. **Comment:** For licensees not adopting a risk-informed licensing basis, the proposed RIS should be revised to address compliance by accepting NEI 00-01, without additional qualification, as an acceptable method for conducting circuit analysis that complies with the regulations.

Response: Because NEI 00-01, without additional qualification, does not comply with Appendix R requirements, adoption of NEI 00-01 without qualification would require a rule change. The NFPA 805 Rule was issued in response to the industry’s expressed desire to move to a more risk-informed approach to their fire protection program.

6. **Comment:** For licensees not adopting a risk-informed licensing basis, the proposed RIS should be revised to address safety by recognizing the role of risk-informed licensee self-assessments (using NEI 04-06) and risk-informed inspections (using RIS 2004-03) to identify safety-significant circuit failure issues.

Response: As noted, a risk-informed approach to fire protection is available to licensees by adopting NFPA 805 or using alternative risk-informed methods that have been approved by the NRC. The RIS clarifies the deterministic regulatory requirements.

7. **Comment:** Retention of the current content of the RIS will greatly complicate licensee compliance, blur potential safety issues with unnecessary deterministic analysis, greatly complicate inspection and enforcement, and contribute to continued regulatory instability with regard to this issue.

Response: The express purpose of the RIS is to re-affirm and clarify regulatory requirements in order to simplify inspection and enforcement and to bring regulatory stability to this issue. The motivation for preparing the RIS was the resumption of circuit inspections which were suspended because of the lack of clarity of this issue. The RIS was also motivated by the results of the NEI/EPRI cable fire tests, which demonstrated that the interpretations of the regulatory requirements by some licensees, in addition to not being in accordance with regulations because such interpretations did not provide adequate assurance of safe shutdown, were not technically sound. The RIS provides inspectors with the means for resolving disagreements with licensees over the intent of the regulations, thus simplifying the inspection and enforcement process. By clearly defining the deterministic path to compliance, the RIS simplifies compliance for licensees and eliminates uncertainty.

8. **Comment:** Recommend extending the use of enforcement discretion beyond the end of 2005 to achieve the goal of endorsing NEI 04-06 as an acceptable method for conducting licensee self-assessment.

Response: This comment is being considered by the Staff.

Enclosure Comments (Fred Emerson)

1. **Comment:** The statement that “this RIS clarifies the requirements for compliance with Appendix R” is not accurate. In fact this RIS creates new requirements for compliance with Appendix R. This document appears simply to be a re-interpretation of the regulatory requirements.

Response: The staff disagrees. The RIS only “creates new requirements” for licensees that have not performed their circuit analyses in accordance with the regulatory requirements and therefore does not constitute a new staff position or a new regulatory requirement.

2. See Comment/Response No. 4 above.

3. **Comment:** I question the use of “safety significance” to justify conservative deterministic requirements that do not in fact permit the consideration of safety significance in postulating circuit failures.

Response: The deterministic requirements of the NRC regulations are based on consideration of safety significance.

4. **Comment:** A licensee’s use of the exemption process to apply risk-informed methods to circuit analysis will result in hundreds of cases where exemptions are needed for low-significance issues.

Response: A licensee that has not adopted a risk-informed, performance-based fire protection program through the license amendment process has a fire protection program based on deterministic requirements. Consequently, the use of risk-informed methods to self-approve changes to that program would be outside the license basis.

5. **Comment:** Most licensees would likely consider this a significant change in staff position, compared with the NRC intent and inspection practice in the 1980's when the current regulations and guidance became effective.

Response: The discussion in the attachment to the RIS provides multiple references and quotations from those references that demonstrate that the positions in this RIS are not new staff positions and are, in fact, consistent with all regulatory positions the staff has previously taken. In addition, the NEI/EPRI cable fire test program provided valuable risk insights with respect to this issue that confirmed the importance of these staff positions and the appropriateness of the regulatory requirements.

6. **Comment:** The RIS provides guidance with respect to operator manual actions. This has the impact of imposing one set of “requirements” while the rulemaking is in progress, and a different set of requirements when the rule becomes effective. This places the licensee in a very difficult position. The RIS should remain silent on the acceptability of III.G.2 operator manual actions while the rulemaking is in progress.

Response: A RIS does not impose requirements on licensees. A RIS is an informational document that is used to communicate with the nuclear industry on a broad spectrum of matters having generic applicability. It does not involve a request for action or information

unless the request is strictly voluntary. A RIS may be used to announce staff technical or policy positions on matters that have not been broadly communicated to the nuclear industry or are not fully understood.

See Response to NEI Comment No. 5