NUCLEAR ENERGY INSTITUTE

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Mr. John Hannon
Chief, Plant Systems Branch
Office of Nuclear Reactor Regulation
Mail Stop O11-A11
U. S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Dear Mr. Hannon:

We appreciate the actions taken recently by NRC to promote the permanent resolution of the longstanding fire-induced circuit failure issue and the manual actions issue. These actions include the recent February 19 workshop, several reviews of NEI 00-01 drafts, preparation of guidance for the inspection of manual actions, and several meetings with stakeholders to discuss several aspects of this issue. This letter summarizes the industry views on completing the resolution of these issues, including:

- Several principles for resolving these issues that, if accepted by NRC, would meet both licensee and regulatory needs
- Recommended actions for closure of these issues
- Comments on recent documents issued by NRC

We believe the principles listed below serve as the basis for the overall resolution of these issues. Consistent application of the first principle will help assure a stable set of regulatory expectations to guide licensees in what constitutes acceptable methods for compliance with existing regulations. Application of the second principle will help assure that circuit failure issues of risk significance are adequately addressed by licensees, whether they reflect compliance issues or issues beyond the licensing basis. Application of the third principle will reinforce the safety focus for the application of manual actions to circuit failure mitigation.

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1. When inspection of associated circuits (including multiple spurious actuation and Information Notice 92-18 issues) resumes, the focus should be on establishing compliance with the plant-licensing basis. We recognize that inspections may also identify potential risk significant issues beyond the licensing basis. If the licensing basis is not clear on certain points, NEI 00-01 deterministic methods should be considered as an acceptable means to achieve resolution. Compliance-type findings should be clearly delineated from potential findings of risk significance, though all significant findings should be addressed by the licensees.

2. The risk methods in NEI 00-01 should be considered one acceptable method for determining the risk significance of potential failures.

3. The currently planned manual actions rulemaking should reinforce the regulatory focus on the feasibility and safety of manual actions rather than the need for exemptions and deviations.

Details of these principles are provided in Enclosure 1. We recommend the following actions to implement these principles and close the issues:

- Accept NEI 00-01 (NRC)
- Coordinate all fire protection rulemaking activities (NRC)
- Develop appropriate inspection guidance and training (NRC)
- Document regulatory expectations and resolution plans in a Regulatory Issue Summary (NRC)
- Conduct a workshop for licensees and NRC (NEI)
- Monitor triennial inspection results (NRC and NEI)

Further information about these actions is provided in Enclosure 2.

NRC has recently published a March 6, 2003, revision to Inspection Procedure 71111.05, Fire Protection, to include criteria for the inspection of manual actions, as well as draft language for a further revision to the IP to address the renewed inspection of associated circuits. Comments on these documents are provided in Enclosure 3.

We believe that licensees and NRC staff will benefit considerably from these actions, which have the complementary goal of providing a clearly understood and stable set of regulatory and licensee expectations for resolving and closing the fire-induced circuit failure and manual actions issues.

If you require additional information, please contact me at am@nei.org, or Fred Emerson at 202-739-8086 or fae@nei.org.

Sincerely,

Alexander Marion

c: Suzanne Black, NRR
Eric Weiss, NRR

Enclosure 1

Industry Principles for Fire-Induced Circuit Failure Resolution

Acceptable Methods for Deterministic Circuit Failure Analysis

The ultimate basis for regulatory compliance at any site should be the regulations and the licensing basis for the facility. In the event that an issue arises in discussions with the NRC that is not specifically addressed by the facility's licensing basis, the NRC should accept the deterministic methods in NEI 00-01 Section 3 as one approach for interpreting the regulatory requirements. For example, using the deterministic guidance of NEI 00-01, the following would be an acceptable interpretation of the regulatory requirements in the absence of any specific language to the contrary in a licensee's licensing basis:

> Fire induced circuit failures are evaluated individually for their impact on post-fire safe shutdown. Every fire induced hot short, short-to-ground or open circuit that can occur as a result of a fire in any given fire area is addressed, but they are addressed individually and their effects are not combined, except for the special case of high/low pressure interface valves.

Inspectors have not always accepted prior NRC-issued SERs related to fire protection issues. Even if new information suggests that the licensing basis is flawed, it is essential that SERs be considered part of the licensing basis until such time as appropriate regulatory processes are used to change the licensing basis. This will also help to enhance the stability of NRC expectations. If SERs indicate general acceptance of a safe shutdown analysis without explicit approval of specific assumptions, inspection findings about the validity of those assumptions should be treated as potential risk significant issues outside the licensing basis.

The Reactor Oversight Process (ROP) allows NRC inspectors to identify findings that are not licensing basis or design basis violations (potential areas of risk significance outside the licensing basis), as well as those that are. These two types of findings should be clearly delineated so that clarity is maintained in the plant licensing basis. However, licensee actions to address the two types of findings are the same if NEI 00-01 risk analysis indicates that they are risk significant (see "Acceptance of NEI 00-01 Risk Significance Methods" below).

NRC acceptance of this principle would provide clear guidance for post-fire safe shutdown in a way that captures the licensing basis. This is also consistent with the way in which the issue has been addressed in the industry over the past 20 years. The NRC would, through the ROP, have a mechanism for identifying and achieving resolution on issues that have potential risk significance. The licensees would have a clear understanding of NRC expectations for acceptable methods of deterministic circuit analysis.

Acceptance of NEI 00-01 Risk Significance Methods

We believe the risk methods in NEI 00-01 Section 4 are adequate and sufficient to determine the potential risk significance of post-fire safe shutdown issues, and NRC should accept them. These methods provide an effective tool for assessing the risk significance of NRC or licensee identified issues, whether they are compliance related or potential risk issues outside the licensing basis. Should an issue be determined through the risk assessment process to be significant, the licensee would take appropriate corrective action through its Corrective Action Program. For a compliance issue deemed not risk significant, the licensee would follow appropriate reporting requirements and either address it in the CAP or use the risk analysis to support the exemption/deviation process. For other issues deemed not risk significant, the licensee would document the analysis but take no further action.

Manual Actions Issue Resolution

During a meeting on June 20, 2002, industry representatives understood that NRC planned to refocus inspections on the safety/feasibility of III.G.2 manual actions rather than the need for exemptions or deviations. Since then NRC has undertaken a rulemaking plan, and has revised Inspection Procedure 71111.05 to provide additional guidance on manual action feasibility and treatment of manual action findings. The change to the inspection procedure is an important step in providing clear guidance to licensees on NRC expectations. Additional comments are noted in Enclosure 3.

It is important for the rulemaking plan, and for the revised rule itself, to clarify NRC expectations for licensee use of III.G.2 manual actions. We recommend that this plan and the rule address NRC expectations for III.G.1 manual actions as well, since this is also an area where more clarity is needed. The rule should be flexible enough to allow the licensee to demonstrate that all necessary manual actions can be carried out safely, and should not provide prescriptive criteria on risk levels and numbers of allowable actions.

NRC acceptance of NEI 00-01 will provide more clarity for the regulatory requirements covering the use of manual actions in support of post-fire safe shutdown. NEI 00-01 Appendix E clearly defines remote control, manual operations, remote manual operations and local operations and describes the use of each of these types of actions in support of post-fire safe shutdown is provided. We recommend consideration of Appendix E in the manual actions rulemaking currently underway.

During a meeting on March 18 NRC staff requested industry consideration for several manual actions pilots. The stated goals of the pilots are to determine whether the manual action feasibility criteria in the new revision of IP 71111.05 are

valid, and to develop technical bases for the criteria. We do not believe that pilots are necessary. The feasibility criteria in IP 71111.05 are generally consistent with the industry guidance stated in NEI 00-01, and thus should not need further evaluation.

As an alternative, it would be more productive for industry and NRC to develop performance thresholds for determining whether each feasibility criterion is met. NEI's Circuit Failures Issue Task Force and other industry representatives can develop and recommend such thresholds for NRC consideration, based on extensive experience at a broad spectrum of plants. However, if NRC decides that pilots are indeed necessary to support the rulemaking, NEI will work with NRC to develop the needed information.

Enclosure 2

Recommended Steps for Circuit Failure Issue Resolution

We recommend the following actions:

1. NRC should accept NEI 00-01, possibly with exceptions, using both a new rulemaking and a regulatory guide for plants maintaining their current licensing basis. The rulemaking to allow adoption of NFPA 805 should also recognize NEI 00-01 as an acceptable method for addressing circuit failure issues.

2. NRC should coordinate the rulemaking activities for NFPA 805 adoption, manual actions resolution, and acceptance of risk-informed circuit failures resolution methods contained in NEI 00-01. Such coordination will help avoid potential conflicts between the resolution activities as well as undue delays.

3. NRC should develop appropriate inspection guidance and training for inspectors in preparation for resuming associated circuits inspections. We understand that this step is in progress. Industry is prepared to provide appropriate support as needed.

4. NRC should document regulatory expectations and plans for resolution of the circuit failure and manual actions issues in a Regulatory Issue Summary (RIS), following Commission approval of rulemaking plans in progress for these two related issues. The RIS should clearly state (1) NRC policy and inspection expectations with respect to circuit failure and manual actions practices, and (2) the proper handling of Unresolved Issues (URIs) and Apparent Violations identified prior to the moratorium on inspections of associated circuits. The RIS should be followed by a short period of enforcement discretion to permit licensees to address these policies and expectations through revised procedures or analysis.

5. NEI plans to conduct a workshop on circuit failures and manual action implementation at the Fire Protection Information Forum in September 2003. NRC participation at both the senior management and technical levels will help assure consistency of expectations between industry and NRC.

6. NRC and industry should monitor the results of regional inspections of these issues during the next triennial inspection cycle to assure that expectations are achieved.

Enclosure 3

Comments on Recent NRC Documents

IP 71111.05 Manual Action Feasibility Criteria

1. NRC's feasibility criteria in IP 71111.05 appear reasonable. The appropriate portions are included in NEI 00-01 (Revision 0) Appendix E for submittal to NRC in the very near future. The feasibility criteria in the inspection guidance should be used as a basis for identifying potential risk significant concerns rather than judging regulatory compliance, which should be assessed against the licensing basis.

2. The IP should clearly delineate differences (if any) in expectations for Appendix R plants vs. NUREG-0800 plants.

3. The IP should provide additional guidance on the assumptions to be used for numbers of simultaneous manual actions and for the timing of their application. This information should flow from, or be consistent with, revised guidance currently being developed to address inspection of associated circuits and spurious actuations.

4. In the section of IP 71111.05 entitled "Level of Effort," the fire area selection process is stated to consider areas where the licensee uses manual actions in lieu of full implementation of Section III.G.2. The implication that licensees using manual actions are not in compliance with Section III.G.2 is incorrect, as we indicated in our letter of January 11, 2002. The use of III.G.2 manual actions is in the licensing basis of many plants based on staff guidance discussed in that letter and in a June 20, 2002 meeting, and has been accepted on many occasions by NRC inspectors. The NRC inspection focus should continue to be on fire areas of risk significance, not those where III.G.2 manual actions are used.

5. The IP states that if inspectors determine that manual actions are reasonable and meet the criteria of Enclosure 2 to the IP, the inspection report should deem the issue as a Green finding under the ROP pending the Commission's acceptance of the proposed rulemaking to address this issue. It further states that the licensee continues to be in violation of the code requirements even though the manual actions are deemed reasonable. This is not appropriate. As stated earlier, licensing bases reflecting III.G.2 manual actions have been considered acceptable by NRC inspectors for many years. The only basis for a potential violation would be if a licensee is not in compliance with the regulations and its own licensing basis.

   It would be more appropriate to consider the use of feasible III.G.2 manual

actions an unresolved issue (URI) pending Commission action on the proposed rulemaking. Color findings (Green, White, etc.) should be reserved for manual actions where the inspector has a concern with their feasibility, or potential risk significance. Further, any such findings should be clearly noted as being of potential risk significance rather than compliance issues.

6. The inspection criteria related to procedures should reflect the acceptability of including manual actions in abnormal operating procedures as well as emergency procedures.

NRR Input to Circuit Failure Inspection Procedure 71111.05 (March 19, 2003. Memorandum from J. Hannon to C. Carpenter)

1. General: The use of risk insights to focus resumed inspections is appropriate. Such insights will be helpful in identifying circuit failure issues of potential risk significance without wasting inspection resources on areas of low significance. At the same time, care should be taken to assess compliance against the licensing basis.

2. General: The inspection procedure should state clearly the treatment of Unresolved Issues (URIs), including the issues related to multiple spurious actuations and Information Notice 92-18, identified prior to the moratorium on inspections of associated circuits. Since these issues were left for resolution when a method of assessing their risk significance became available, the NEI 00-01 methods could now be used for resolving these URIs as for newly identified issues.

3. Background Section: The reference to the Post-Fire Safe Shutdown NUREG/CR (ADAMS Accession # ML023430533) should not be included in IP 71111.05. Since we understand that NRC plans to approve NEI 00-01 as the basis for circuit failure issue resolution, it is inappropriate to publish a separate NUREG/CR that conflicts in places with NEI 00-01.

4. Basic Risk Equation Section: Care should be taken to assure that the "Basic Risk Equation" is consistent with NEI 00-01 and with the SDP revision currently in progress.

5. Paragraphs 2A and 2B: The criteria that thermoset cables will fail within 10 minutes of exposure to 700 degree F temperatures, and thermoplastic cables within five minutes of exposure to 425 degree temperatures, are not useful. First, it is difficult to determine with precision when specific cables are exposed to specific temperatures. Second, it does not reflect the total time taken to reach the projected failure point. It would be far more appropriate to use a criterion such as "cables will fail within X minutes of initiation of a fire that reaches 700 degrees." This allows the inspector to more easily

determine if the licensee can take action to control the fire or mitigate the consequences within the total time available. The fire test data are sufficient to support the development of such criteria.

6. Paragraph 2C, first bullet, states that "inspectors should consider only a few (three or four) of the most critical postulated combinations" for intra-cable shorting. Consistent with the prior discussion in this paragraph 2C bullet, it should be made clear that these are combinations of two failures, and that the combinations of two failures must lead to unacceptable consequences in order to qualify for review.

7. Paragraph 3: While the consequences of potential circuit failures are an important parameter to focus inspections, risk also needs to be considered. There are many possible high-consequence circuit failure scenarios the inspector could review, so it is important to focus on those high-consequence scenarios that are also risk significant. The IP input considers risk by stating that "those that impede Hot Shutdown in the first hour of the fire tend to be the most risk significant." The licensee should be permitted to demonstrate that other factors, such as plant-specific cable or fire barrier configurations, could make specific "high consequence" fire-induced failures an acceptable risk even if there is a potential for impeding safe shutdown in the first hour.

8. Paragraph 4: The NRC summary of the workshop on February 19 indicated that "the group agreed that, in general, armored cable with fuses was not a likely source for maloperation." The workshop participants agreed that multiple shorts involving armored cable should be considered a "Bin 2" issue and thus not subject to inspection when the circuit analysis inspections resume. This should be included in Paragraph 4, as inter-cable shorts in armored cable are discussed in Paragraph 5.