

August 20, 2001

MEMORANDUM TO: Cynthia Carpenter, Chief
Generic Issues, Environmental, Financial &
Rulemaking Branch
Division of Regulatory Improvement Programs, NRR

FROM: Joseph Birmingham, Project Manager/**RAI**
Generic Issues, Environmental, Financial &
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Division of Regulatory Improvement Programs, NRR

SUBJECT: SUMMARY OF AUGUST 8, 2001 MEETING WITH THE NUCLEAR
ENERGY INSTITUTE ON RISK-INFORMED POST-FIRE SAFE
SHUTDOWN CIRCUIT ANALYSIS METHODOLOGY

Staff of the Nuclear Regulatory Commission (NRC) held a public meeting with the Nuclear Energy Institute (NEI) in Rockville, Maryland on August 8, 2001, to discuss NEI's risk-informed post-fire safe shutdown circuit analysis (fire-induced circuit failures) methodology. Attendees are listed in Attachment 1. The meeting began with John Hannon, Chief, Plant Systems Branch, expressing a concern that the methodology development effort may be proceeding too fast and that questions and comments by the staff may not be factored into the development in a timely fashion requiring later revision of the effort. The industry is proceeding with pilot inspections and the staff has not yet commented on the revisions to NEI 00-01, "Generic Guidance for Post-Fire Safe Shutdown Analysis." Mr. Hannon stated that the agency has deferred enforcement in this area as described in Enforcement Guidance Memorandum (EGM) 98-002, Revision 1, because the issue is not well understood and the agency does not wish to cause industry to take actions counterproductive to a resolution. However, the staff needs to be in step with the industry process. The staff is prepared to listen to industry's actions but the staff also has some concerns.

Fred Emerson, NEI, then began the industry presentation by saying that, as the meeting went along, he hoped the staff would find that the gap between industry and the NRC was not as big as may be thought. In response to questions on the status of documents, Mr. Emerson said that NEI will place the revision to NEI 00-01 on the docket and plans to provide a written response to the staff's Request for Additional Information (RAI) February 1, 2001. NEI believes the revision to NEI 00-01 and the testing performed are responsive to the RAI. He pointed out that NEI has shared its plans for testing with the staff and that the staff has commented on the tests and witnessed the fire tests.

Mr. Emerson then gave a presentation that covered the purpose of the presentation, the recent history on this concern, and a summary of industry activity. Details of this discussion are in the presentation material attached to this memorandum as Attachment 2. The purpose of the presentation was to summarize overall progress on resolution activities and to provide detailed updates for certain resolution activities. The recent history included a July 1998 NRC workshop to develop a resolution pathway, a 1999 Boiling Water Reactor Owners Group deterministic analysis method, an April 2000 draft of NEI 00-01 presented to NRC, circuit failure testing

performed January - May 2001, the beginning of an expert elicitation panel to consider the test
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results in June 2001, and the beginning of pilots at selected plants in July 2001. NEI discussed these topics in detail particularly the testing results and the revised analysis and screening process in NEI 00-01. NEI emphasized that the process was intended to help plants address identified issues in this area but was not a wholesale re-examination of plant safe shutdown analysis.

NEI summarized the process in a chart showing the following steps:

- Circuit Selection
- Review for Safety Margin and Defense-In-Depth
- A Qualitative Pre-Screen
- Conventional Safe Shutdown Analysis
- Risk Significance Screen
- Documentation

At anytime during this process, the plant licensee could choose to fix the concern if the licensee determined that this was the most efficient path or the licensee could continue the process to see if the concern would screen out.

During the presentation on the methodology, the staff asked many questions and commented on the methodology. The staff was not sure that the methodology preserved safety margins, maintained defense-in-depth, or could be implemented within the existing regulatory framework. The staff was particularly concerned about the final screening process. The staff also expressed concerns that the methodology did not appear to address failures in multiple fire zones, multiple failures within a single fire zones, and appeared to screen out circuit failures with very high consequence but low probability.

NEI described the pilot process for NEI 00-01. The pilots would be conducted at two plants, one at a boiling water reactor and the other at a pressurized water reactor. The pilots were an attempt to verify NEI 00-01 as a "proof of concept" and would be a vertical slice examination of selected issues. The pilots were expected to be complete by the end of September 2001.

NEI described the fire-testing that had been performed and answered questions about how the testing was set up and gave preliminary observations on the results. The test results have been provided to an expert panel to determine probabilities of spurious actuations. NEI noted that the fire testing was performed to cause circuit shorting to assemble data for the expert panel to assess. Descriptions of the fire-testing setup and configuration are in Attachment 2.

NEI stated that it planned to hold a workshop, October 24-25, 2001, on NEI 00-01 in connection with its Fire Protection Information Forum. Topics for the workshop included discussion of NEI 00-01, the EPRI/NEI fire tests, the pilots, and input from the plants. This concluded the material NEI had to present.

NEI committed to have a copy of the current draft of NEI 00-01 to the NRC in two weeks followed by the industry response to the NRC RAI. The input from the individuals on the expert panel was expected to be received by NEI at the end of August 2001 and a report from the Technical Integrator was expected by the end of the year. The staff noted that NEI and industry had performed much work toward assessing the importance of fire-induced circuit failures and that the circuit analysis methodology also reflected much work. However, the staff had not yet

reviewed the revisions to the analysis and as indicated during the meeting had questions about
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parts of the methodology. No plans were made for when the staff would have comments on the revised NEI 00-01.

Project No. 689

Attachments: As stated

cc: See list

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Attachments: As stated
cc: See list

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CIRCUIT ANALYSIS METHODOLOGY, NEI 00-01**

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