



NUCLEAR ENERGY INSTITUTE

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June 19, 2002

Dr. P.T. Kuo  
Program Director  
License Renewal and Environmental Impacts  
Division of Regulatory Improvement Programs  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555-0001

**SUBJECT:** Industry Response to the Proposed NRC Guidance on the  
Identification and Treatment of Electrical Fuse Holders for  
License Renewal

**PROJECT NUMBER:** 690

Dear Dr. Kuo:

On May 16, 2002, NEI received "Proposed Staff Guidance on the Identification and Treatment of Electrical Fuse Holders for License Renewal." This proposed guidance is the result of reviews performed by the NRC of license renewal applications where it was identified that the applicant had not specifically identified fuse holders as long-lived, passive components that are subject to aging management review. The industry has reviewed the proposed guidance and provides the following comments.

The NRC proposed staff position states that fuse holders are passive electrical components, and that "fuse holders would be scoped, screened, and included in the aging management review (AMR) in the same manner as terminal blocks and other types of electrical connections that are currently being treated in the process." NEI agrees with this statement. NEI's position is that fuse holders are specific types of terminal blocks, and should be included in a license renewal application as terminal blocks and other types of electrical connections.

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The NRC proposed staff position also states that fuse holders that are inside the enclosure of an active component are considered to be piece parts of the larger assembly. NEI agrees with this position, and concurs that the fuse holders inside enclosures of active components are not subject to an AMR. NEI agrees with the first and second paragraphs of NRC's proposed guidance section titled "Rationale", where the NRC identifies the intended functions, and that these intended functions are performed without moving parts or with change in configuration or properties, and that the fuse holders are subject to an AMR. NEI also agrees with the NRC in that "fuse holders/blocks are classified as a specialized type of terminal block because of the similarity in design and construction." Further, NEI's position is that fuse holders are subject to the same aging effects as terminal blocks; and that the same aging management programs, if any, credited to manage aging of terminal blocks adequately manage aging for fuse holders.

NEI does not agree with the assessment of operational experience discussed by the NRC in the third paragraph in the "Rationale" section of the proposed guidance document. The NRC proposed guidance states that NUREG-1760 "identified fuse holders as experiencing a large number of degradation-related failures." NEI disagrees with the NRC's statement that there have been a large number of failures of fuse holders. Rather, in the Executive Summary of NUREG-1760 (page x), the NRC concludes, "the number of age-related fuse failures reported in NPRDS, LER, and EPIX databases was relatively low. This indicates that an age-related fuse failure is an infrequent occurrence." The NRC also states in NUREG-1760 (page x) the "results show no discernible trend in the number of reported failures . . . suggesting that age-related fuse failures are currently being controlled." NEI concurs with the conclusion in NUREG-1760 that the low number of failures, many of which are the result of design deficiencies or human interaction, and the absence of an increasing trend of failures with time, indicates that aging of fuse holders is not an issue that needs to be addressed in a license renewal application.

The examples of failures of fuse holders described in NUREG-1760 largely deal with loosening of the fuse holder clips. However, the information does not support that this is a significant problem, given the large number of fuse holders present in nuclear power plants and the low number of failures of fuse holders. Also, loosening of the holder clips, or loss of spring tension in the holder clips, is normally caused by frequent removal and reinstallation of the fuse. From a license renewal perspective, the loosening of the fuse holder is the result of human interaction, and not from aging.

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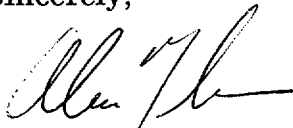
(Reference Chris Grimes, NRC, to Doug Walters, NEI, License Renewal Issue No. 98-0013, "Degradation Induced Human Activities", June 5, 1998) Fuse holders are not designed to be used in place of a switch for frequently disconnecting a circuit. The proper response to this issue is not to manage the aging of the fuse holder but to change the design of the circuit or of the operation so that the fuse does not have to be removed frequently. In many cases, this would involve installation of a switch to disconnect the circuit.

In Summary:

NEI's position is that fuse holders are a specialized type of terminal block and are another example of an electrical connection that should be included in the list of examples under NEI 95-10, Appendix B, Item 77, Cables and Connections. We will include this information in the next revision of NEI 95-10. Likewise, in a future update fuse holders should be included as an additional component example under Item 77 in Table 2.1-5 of NUREG-1800. NEI's position is that fuse holders pose no additional aging effects that require management, and would not expect to see any changes in the content of license renewal applications to address fuse holders.

If you have any questions, please call me (202) 739- 8110 or by e-mail (apn@nei.org).

Sincerely,

A handwritten signature in black ink, appearing to read "Alan Nelson", written in a cursive style.

Alan Nelson