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The Honorable Ivan Selin
Chairman
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Chairman Selin:

SUBJECT: NRC STAFF RESPONSE TO THE PETITION SUBMITTED BY RICHARD GRILL FOR RULEMAKING ON ELECTRICAL TRANSIENTS, PRM-50-56

During the 392nd meeting of the Advisory Committee on Reactor Safeguards, December 9-11, 1992, we reviewed the NRC staff's response to the petition submitted by Richard Grill for rulemaking on electrical transients. During this review, we had the benefit of discussions with representatives of the NRC staff and of the documents referenced.

The petitioner requested that the NRC quantify the potential adverse consequences of lightning and other electrical transients on the safety of nuclear power plants, and provide regulations and guidance to require licensees to analyze for, and take protective measures against, these potential consequences.

The staff contends that the potential consequences of lightning and other electrical transients are known and have been adequately dealt with in the design of nuclear power plants. The staff maintains that its licensing review of operating plants for conformance to GDC 2 and GDC 4 includes consideration of protective measures against these potential consequences. The staff's review was based on the use of established industry standards and practices, satisfactory performance of equipment and components in electromagnetic environments, and qualification testing of components and systems. The staff stated it had previously determined that additional industry-wide regulation of lightning protection is not cost effective, based on an assessment done at the request of the ACRS in 1981. The staff's review of lightning related event reports since 1980 concludes that the risk of core damage from such events is not significant.

The staff stated that it has issued guidance for plants with histories of lightning strikes that have caused more malfunctions than just a loss of offsite power, to include those events in their Individual Plant Examination of External Events. In addition, the staff is requiring digital components to be qualified against electrical transient induced failure. Finally, advanced plant designs are being evaluated against EPRI requirements for lightning and electrical transient protection.

We agree with the staff's conclusion that current operating nuclear power plants are adequately protected at this time, and that rulemaking is not needed.

We note that for future reviews the staff is currently developing a regulatory guide on electromagnetic interference, reconsidering developing a regulatory guide on lightning protection, reviewing industry standard NFPA-78 on lightning protection, and augmenting guidance for staff review. We recommend that the staff use and endorse industry guides and standards, to the extent practical, and work with industry toward the development of additional guidance as needed.

Sincerely,

Paul Shewmon
Chairman

References:

1. Memorandum dated November 5, 1992, from W. Minners, Office of Nuclear Regulatory Research, NRC, for R. Fraley, ACRS, Subject: Staff Response to the Petition for Rulemaking on Electrical Transients Submitted by Richard Grill, PRM-50-56
2. National Fire Protection Association, Inc., Lightning Protection Code (NFPA-78), August 7, 1989