June 20, 2012

Mr. Ken Canavan, Director
Plant Technology
Nuclear Sector
Electric Power Research Institute
1300 West WT Harris Blvd
Charlotte, NC 28262

Dear Mr. Canavan:

The U.S. Nuclear Regulatory Commission (NRC) staff has reviewed Electric Power Research Institute (EPRI) Technical Report (TR) 1022993, "Evaluation of Peak Heat Release Rates in Electrical Cabinet Fires." TR-1022993 uses fire test data from published literature as a basis to develop models for the adjustment of heat release rates (HRRs) from electrical cabinets at nuclear power plants based on ventilation conditions. During that review, a number of technical concerns were identified regarding the applicability of the results in the report. Some of these concerns were previously provided to EPRI staff based on a limited review of the draft report with the expectation that a detailed review would be requested through the NRC/EPRI Memorandum of Understanding (MOU). However, this detailed review of the report was never requested prior to final publication, and it appears that additional work beyond the limited editing of the final report is necessary to adequately address these concerns.

A detailed discussion of the staff's concerns is included as an attachment to this letter. Some of the more significant issues are:

- The fire test data used to support the conclusions in the report are not statistically representative of electrical cabinets found in nuclear power plants or actual fire ignition events.

- The fire spread in the electrical cabinets, as reported in the literature, is related to the test arrangement and not an inherent physical design of the in-plant cabinets.

- Some of the report's basic premises are well accepted within the fire protection community. However, the limited amount of fire test data and unsubstantiated assumptions, such as the inappropriate use of "combustion efficiency," does not support the broad applications proposed in the report.

Further, we are of the opinion that significant additional fire test data are required to develop improved guidance on electrical cabinet HRR. Such data are unlikely to be found in available literature. In an effort to improve the electrical cabinet HRR information in NUREG/CR-6850 (EPRI 1011989), "EPRI/NRC-RES Fire PRA Methodology for Nuclear Power Facilities," the NRC's Office of Nuclear Regulatory Research (RES) is starting an effort to conduct full-scale fire testing of nuclear power plant electrical cabinets. This effort will identify, obtain, and test electrical cabinets representative of those currently installed in the US commercial nuclear power plants. RES plans to interact closely with all stakeholders on this effort.

Communication between industry, the NRC, and other stakeholders is the most effective and efficient means of addressing issues, and we will continue to engage and interact as appropriate and we encourage EPRI and industry representatives to do the same. If you have any questions or would like to arrange a meeting between our respective staffs to discuss our technical concerns, please contact Mark Henry Salley at (301) 251-7613.

Sincerely,

/RA/

Richard P. Correia, Director
Division of Risk Analysis
Office of Nuclear Regulatory Research

Enclosure:
As stated

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