NUCLEAR ENERGY INSTITUTE

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December 4, 2009

The Honorable Gregory B. Jaczko
Chairman
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Subject: Fire Probabilistic Risk Assessment

Project number: 689

Dear Chairman Jaczko:

We commend the commission for holding the November 3 briefing on the pilot program for risk-informed, performance-based fire protection under 10 CFR 50.48c (NFPA 805). This briefing helped all parties remain aware of the status of activities and issues associated with this effort. An important issue discussed by industry representatives was fire probabilistic risk assessment (PRA) and the concern that current methods do not yield realistic estimates of plant fire risk. The purpose of this letter is to further elaborate on the nature of this concern, its potential impact on licensee decisions to transition to NFPA 805, and a path forward to facilitate these decisions.

We believe that unrealistic estimates of fire risk are in part due to the fact that several fire PRA issues remain to be resolved, as demonstrated by the amount of fire research currently planned by the U.S. Nuclear Regulatory Commission. Industry, through the Electric Power Research Institute (EPRI), is also undertaking a significant amount of work to achieve better realism in fire PRA. This work is described in the fire PRA action plan, which is attached for your information. The EPRI fire PRA action plan can produce meaningful improvements that would result in greater value and acceptance of fire PRA, both for transitioning to risk-informed fire protection and other applications supported by PRA. Elements of the plan include improved data collection, methods refinement, and fire testing where appropriate.

The NRC's PRA policy statement calls for realism in PRA methods. We agree with this concept, and the NRC and industry efforts to date have strived to produce PRAs that depict a best estimate of the level of safety, and which should reflect the many improvements in fire protection implemented since the Browns Ferry fire in 1975. Fire PRAs performed to NUREG CR-6850 and the NRC responses to

"frequently asked questions" for NFPA 805 produce results that are inconsistent with operating experience and do not depict actual plant fire risk. As an example, these methods predict that over 100 severe fires should have been observed to propagate from low voltage electrical cabinets, when in reality few such events have been observed in 3000 reactor years of U.S. plant operation. These and other such assumptions combine to produce exaggerated fire core damage frequencies. Use of these metrics could have consequences adverse to safety by wrongly shifting resources from more important safety issues, and could also undermine public confidence in the regulatory framework. We believe public understanding, transparency and the credibility of the regulator and industry are best served by presenting a realistic perspective on plant risk.

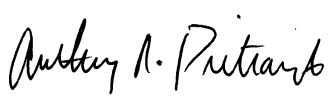
While additional research to achieve more realism is important, this alone cannot solve the problem. Commission direction on the need to adhere to the PRA policy statement is also warranted. In fact, considerable additional realism could be achieved now by adopting PRA methodology approaches that are consistent with prior practice (i.e. internal event PRAs) and the NRC PRA policy statement.

Multiple paths are available for licensees to demonstrate or achieve compliance with current regulatory interpretations of fire protection requirements. Licensee decisions to transition to 10 CFR 50.48c are enabled by efforts to produce realistic fire PRAs. Transition is a less desirable alternative if fire PRA methods produce results that are not reflective of operating experience. This will also complicate other activities that rely on PRA and diminish the importance of the realistic PRAs that have been performed for internal events

The combined fire research efforts of the NRC and industry total many millions of dollars over the next several years. This is indicative of the amount of work yet to be done to achieve realism in understanding fires and estimating fire risk. Ideally, expectations for the NFPA 805 implementation schedule would be modified to reflect this circumstance. As a minimum, we believe the NRC should recognize that preliminary and conservative fire PRA results can lead to poor decisions and must be carefully treated until better realism is attained. Commission clarification of this matter would facilitate licensee decisions to transition to NFPA 805.

We would welcome the opportunity to discuss this matter further with the commission. Please contact me if you have any questions.

Sincerely,



Anthony R. Pietrangelo

Attachment

c: Commissioner Dale Klein, U.S. Nuclear Regulatory Commission
Commissioner Kristine Svinicki, U.S. Nuclear Regulatory Commission
Mr. R. William Borchardt, U.S. Nuclear Regulatory Commission
Mr. Stephen G. Burns, U.S. Nuclear Regulatory Commission
Dr. Mario V. Bonaca, Chairman, ACRS