

June 17, 2002

The Honorable Richard A. Meserve
Chairman
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Dear Chairman Meserve:

**SUBJECT: PROPOSED REVISION TO 10 CFR 50.48 ENDORSING NFPA-805,
"PERFORMANCE-BASED STANDARD FOR FIRE PROTECTION FOR LIGHT
WATER REACTOR ELECTRIC GENERATING PLANTS"**

During the 493rd meeting of the Advisory Committee on Reactor Safeguards (ACRS), June 6-8, 2002, we reviewed the proposed revision to 10 CFR 50.48 to endorse the National Fire Protection Association (NFPA) standard 805, "Performance-Based Standard for Fire Protection for Light Water Reactor Electric Generating Plants," as a voluntary, alternative set of risk-informed, performance-based fire protection requirements for light water reactors. During our review, we had the benefit of discussions with representatives of the NRC staff and the Nuclear Energy Institute (NEI). We also had benefit of the documents referenced.

RECOMMENDATION

The NRC staff should proceed with issuing the proposed rule for public comment, consistent with the rulemaking plan schedule.

DISCUSSION

The current fire protection requirements for nuclear power plants are deterministic. As such, they are designed to establish an engineering margin for fire protection by ensuring the post-fire survival of at least one set of safety systems that can be used to take the plant safely to hot and cold shutdown. These requirements were developed before the NRC staff or the industry had the benefit of probabilistic risk assessments (PRAs) for fires, or a significant body of commercial reactor operating experience. Consequently, the current requirements are prescriptive and, due to their inflexibility, may create an unnecessary regulatory burden. Today, it is possible to better quantify the probabilities of fire-initiated events, and to integrate fire analysis results to assess the overall safety impact of fire events.

Members of the NRC staff participated in the development of this standard. The staff has concluded that, with certain exceptions, NFPA-805 can serve as a risk-informed, performance-based, voluntary alternative to the fire protection requirements of 10 CFR 50.48(b) and Appendix R to 10 CFR Part 50. We have examined the exceptions to NFPA-805 standard in the proposed rule and found them appropriate.

The NRC staff has proposed a revision to 10 CFR 50.48 that seeks to establish a fire protection rule that is better oriented toward reactor safety in that it allows a risk-informed, performance-based option. The proposed rule endorses NFPA-805 and would allow licensees the flexibility to use alternative approaches to meet the fire safety objectives. A risk-informed rule will enable licensees and the staff to focus their resources on the most risk-significant fire protection equipment and activities, and may also reduce the need for exemptions.

The NRC staff is planning a four-step process to implement the risk-informed option for fire protection. The first step is to modify the rule to enable licensees to utilize NFPA-805 standard as an option. The second step involves the development of implementation guidance for the rule by NEI, and possible endorsement of the NEI guidance by the staff in a regulatory guide. The third step is the development of inspection guidance, followed by inspector training as the fourth and final step.

During our 459th meeting, February 3-6, 1999, we reviewed a draft version of the NFPA-805 standard. Our report of February 18, 1999, was critical of the draft, concluding that "The draft Standard is not, however, a distinct, risk-informed, performance-based alternative to these existing fire protection requirements." We believe that the NFPA and the NRC staff have been responsive to our comments.

The staff considers the proposed rule to be "an essential first step in integrating risk insights and the advances in fire science that have occurred since issuance of Appendix R over twenty years ago." We concur with the staff and conclude that it is appropriate to issue the proposed rule for public comment at this time.

While we are encouraged by the progress toward risk-informing the existing fire protection requirements, we offer a cautionary note. The real value of this work accrues when licensees voluntarily adopt the new standard and begin to revise their fire protection programs. The implementation guidance, including the approved techniques for performing fire PRAs and fire modeling, must require methods and models commensurate with the levels of risk, while being careful to not create unnecessary barriers to the use of the Standard.

Sincerely,

/RA/

George E. Apostolakis
Chairman

References:

1. NFPA-805, "Performance-Based Standard for Fire Protection for Light Water Reactor Electric Generating Plants," 2001 Edition, National Fire Protection Association.
2. Memorandum dated May 8, 2002, from Gary M. Holahan, Office of Nuclear Reactor Regulation, NRC, to Karen D. Cyr, et.al., Subject: Concurrence on Part 50 Proposed Rulemaking Package: Light Water Reactor Adoption of Risk-Informed, Performance-Based Fire Protection Requirements (NFPA-805).

3. Report dated February 18, 1999, from Dana A. Powers, Chairman, ACRS, to Shirley Ann Jackson, Chairman, NRC, Subject: NFPA-805, "Performance-Based Standard for Fire Protection for Light Water Reactor Electric Generating Plants."