

January 28, 2010

Mr. Anthony R. Pietrangelo
Senior Vice President and Chief
Nuclear Officer
Nuclear Energy Institute
1776 I Street, NW, Suite 400
Washington, DC 20006-3708

Dear Mr. Pietrangelo:

Thank you for your letter of December 4, 2009. I also found the Commission briefing of November 3, 2009, to be a good exchange of views and information on fire protection safety at US nuclear power plants.

The Nuclear Regulatory Commission (NRC) expects licensees to achieve and maintain compliance with the applicable fire protection regulations and requirements. The performance-based, risk-informed, fire protection requirements established by Title 10, Section 50.48(c), of the *Code of Federal Regulations* (10 CFR 50.48(c)) and by reference the National Fire Protection Association (NFPA) 805 Standard, "Performance-Based Standard for Fire Protection for Light-Water Reactor Electric Generating Plants," provide the best, most comprehensive, holistic approach to fire protection.

The results from the 10 CFR 50.48(c) pilot plants demonstrate that the current fire probabilistic risk assessment (PRA) methods produce reasonable results that are not only adequate for supporting their 10 CFR 50.48(c) applications, but also support making risk-informed decisions that improve the overall safety of these plants. For example, the Shearon Harris fire core damage frequency (CDF) after transitioning to the 10 CFR 50.48(c) program is estimated to be about 3×10^{-5} /year. This CDF is consistent with the pressurized water reactor (PWR) results presented in NUREG-1742, "Perspectives Gained from the Individual Plant Examination of External Events (IPEEE) Program," and consistent with the staff views based on operating experience. Further, in developing their new program, the licensee used their fire PRA to identify a number of fire-related plant improvements, including the installation of incipient fire detectors in some areas and installation of an alternative means for providing reactor coolant pump seal injection. This latter modification has benefits beyond fire protection, reducing the internal events CDF and resulting in an overall decrease in total plant risk after the transition to 10 CFR 50.48(c). The results of the pilot plant applications demonstrated that there is adequate guidance for licensees to develop PRAs that are sufficiently realistic to implement 10 CFR 50.48(c), and other risk-informed applications, and to use these PRAs to make appropriate safety decisions.

In addition, the NRC staff is properly implementing the Commission PRA policy statement expectations to be as realistic as practicable to the extent supported by the state-of-the-art methods and data. In the early 2000s, the NRC and the Electric Power Research Institute (EPRI) worked collaboratively to develop the state-of-the-art fire PRA methods, models, and supporting data. This collaborative effort resulted in the publication in 2005 of a joint

document, NUREG/CR-6850 / EPRI 1011989, "EPRI/NRC-RES Fire PRA Methodology for Nuclear Power Facilities." As the pilot plants and other licensees have implemented this state-of-the-art PRA guidance, areas of refinement have been identified. The NRC and industry established and are using a frequently asked question (FAQ) process to support resolution and documentation of these refinements. To date, the NRC, using extensive input provided by industry representatives, has established positions on all identified fire PRA-related FAQs.

In summary, the current state-of-the-art fire PRA methods have been well established through a collaborative NRC and industry process. These methods in conjunction with the endorsement last year of the fire PRA Standard form the foundation for developing realistic fire PRAs for both NFPA 805 applications and all other risk-informed applications, and provide the framework for regulatory consistency and stability.

We look forward to further discussions on fire PRA methods and pilot plant lessons learned during a future meeting with the NRC Fire Protection Steering Committee. Should you have any questions, please do not hesitate to contact me.

Sincerely,

/RA/

John A. Grobe, Deputy Director
Office of Nuclear Reactor Regulation

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