

VICTORIA K. ANDERSON

Senior Project Manager,
Risk Assessment

1201 F Street, NW, Suite 1100
Washington, DC 20004
P: 202.739.8101
vka@nei.org
nei.org



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Mr. Richard Correia
Director
Division of Risk Analysis
Office of Nuclear Regulatory Research
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Subject: Results of Industry Tabletop Pilot Exercise of draft NUREG 2180, *Determining the Effectiveness, Limitations, and Operator Response for Very Early Warning Fire Detection Systems in Nuclear Facilities*

Project Number: 689

Dear Mr. Correia:

In our July 7 letter to you, the Nuclear Energy Institute (NEI)¹ suggested that it would be beneficial to conduct a tabletop pilot exercise on NRC's draft NUREG 2180, *Determining the Effectiveness, Limitations, and Operator Response for Very Early Warning Fire Detection Systems (VEWFDS) in Nuclear Facilities*. The purpose of this exercise was to ensure that the conclusions reached when applying the methodology support continued improvement to fire safety in the nuclear industry, and we are pleased to offer the results of this tabletop pilot exercise in Attachments 1, 2, and 3 to this letter.

The results of this tabletop pilot exercise indicate that the draft NUREG is incomplete, and is therefore flawed, and that, if applied, would lead to inaccurate plant Fire PRAs that do not comport with operating experience. While it is widely recognized by both the industry and the NRC that installation of incipient detection would result in detection of very early degradation and would enhance plant safety, the draft NUREG, as written, does not reflect this, and as a consequence, plants would be less likely to install and continually maintain VEWFDS. As evidenced by the attached tabletop exercise results, plants would see minimal additional benefit to installing VEWFDS over traditional fire protection systems due to deficiencies in the guidance.

¹ The Nuclear Energy Institute (NEI) is the organization responsible for establishing unified industry policy on matters affecting the nuclear energy industry, including the regulatory aspects of generic operational and technical issues. NEI's members include all entities licensed to operate commercial nuclear power plants in the United States, nuclear plant designers, major architect/engineering firms, fuel cycle facilities, nuclear materials licensees, and other organizations and entities involved in the nuclear energy industry.

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Several aspects of the incompleteness are noted in the draft NUREG itself. For example, in Appendix D, the NUREG notes that the estimate included therein "likely does not represent the informed technical community's viewpoint." One specific area of incompleteness is the characterization of the incipient phase, which the tabletop pilot exercise revealed resulted in substantial conservatisms. Notably, on Page 8-6, the NUREG suggests that accurate characterization of the incipient phase was not completed as part of this NUREG, and that "a formal process (such as expert elicitation) [should] be followed if better resolution of this quantification is needed." As the schedule for this NUREG did not allow for such a formal process to arrive at the necessary information, the NUREG unfortunately does not accurately reflect consideration of the incipient phase.

An additional aspect of the NUREG that requires additional clarification is the characterization of component-only end state for fires. In the NUREG and supporting spreadsheet, this end state is not included in the event tree, which substantially limits the utility of VEWFDs and is does not comport with operating experience. The industry believes that this NUREG could be significantly improved by inclusion of operating experience in this area, as well as the previously mentioned area of the incipient phase characterization. To that end, the industry has summarized relevant information from the Fire Events Database (FEDB) to support better characterization of the incipient phase and component-only end state; this information is provided in Attachment 4.

It is critical that the NUREG, prior to finalization and issuance for use, give due consideration to relevant operating experience. The industry has significant concerns and strongly objects to the issuance of this NUREG without incorporation of this information. Further, as more VEWFDs is deployed throughout the industry, it is anticipated that additional operating experience will be available. The U.S. nuclear industry fully intends to continuously collect operating experience and share with the NRC to ensure a realistic treatment of VEWFDs in Fire PRAs and agree with the recommendation on Page 9-1 of the draft NUREG, that the approach "be updated as more information becomes available regarding the usage of ASD VEWFD systems in the U.S. nuclear industry."

We look forward to working with the NRC to improve the draft NUREG prior to its issuance for use and on implementing new information in a measured and considerate manner such that results from plant PRAs comport with operating experience. In the meantime, the industry urges the NRC to forgo publication of this document until more complete treatment of key aspects of treatment of VEWFDs systems can be provided. If you have any questions concerning the results of this pilot effort, please contact me.

Sincerely,



Victoria K. Anderson

Attachments

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c: Mr. Joseph Giitter, NRR/DRA, NRC
Mr. Greg Casto, NRR/DRA/AFPB, NRC
Mr. Mark Henry Salley, RES/DRA/FXHAB, NRC
Mr. Gabriel Taylor, RES/DRA/FXHAB, NRC
NRC Document Control Desk