



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**
WASHINGTON, D.C. 20555-0001

December 9, 2016

Mr. Kenneth Canavan, Director
Plant Technology
Electric Power Research Institute
1300 West W.T. Harris Boulevard
Charlotte, NC 28262-8550

**SUBJECT: RESPONSE TO LETTER REGARDING UNRESOLVED TECHNICAL ISSUES
 RELATED TO THE PROPOSED NUREG-2180, "DETERMINING THE
 EFFECTIVENESS, LIMITATIONS, AND OPERATOR RESPONSE FOR VERY
 EARLY WARNING FIRE DETECTION SYSTEMS IN NUCLEAR FACILITIES"**

Dear Mr. Canavan:

This letter is in response to your letter dated October 27, 2016, (available in the NRC's Agencywide Documents Access and Management System (ADAMS) Accession No. ML16301A363), regarding NUREG-2180, "Determining the Effectiveness, Limitations, and Operator Response for Very Early Warning Fire Detection Systems in Nuclear Facilities." The NRC staff developed this document to establish a basis for an interim staff position documented in Frequently Asked Question (FAQ) 08-0046, "Incipient Detection." The basis for the interim staff position was the staff's understanding of very early warning fire detection (VEWFD) systems and failure modes of electrical and electronic equipment in nuclear power plants. NUREG-2180 provides the most comprehensive and complete evaluation to date on the performance of VEWFD systems, human response, and operating experience related to detecting fires during the incipient stage in nuclear power plant installations. This report has significantly advanced the state of knowledge and approaches for evaluating smoke detection performance during the incipient stage. This advancement in the state of knowledge includes both applicable test data and operating experience. The detailed test data and operating experience were not available when the interim staff position was developed on FAQ 08-0046, "Incipient Detection."

As we discussed, your letter dated October 27, 2016, indicated your belief that technical concerns related to NUREG-2180 remain unresolved. Based on our interactions and review of this report, your October 27 letter did not provide new information that changes the results of this report. Your letter included an attachment A, "Significant and Previously Identified Concerns which remain Unresolved in the Proposed NUREG-2180," which presented three comments previously provided by EPRI and two comments by the Nuclear Energy Institute (NEI). The staff has previously reviewed and addressed these concerns during a public meeting on September 20, 2016, followed by a formal response that can be found in NRC ADAMS under Accession No. ML16271A151. The response to the three EPRI comments is attached.

The NRC appreciates EPRI's support and feedback throughout the performance of this project. From supporting site visits in early 2012, interviews and surveys with EPRI members, to providing test plan comments, observing testing, and review and comment on the draft report, EPRI's support has added value to this work. In addition, the industry's sharing of operating

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experience and supporting NRC site visits to refine the pragmatic approaches featured in the report have significantly aided the NRC in ensuring that NUREG-2180 is focused, relevant, defensible, and realistic. The recent teleconference that we had with you and your staff was highly beneficial. We look forward to continuing this collaborative effort under the NRC-RES/EPRI memorandum of understanding.

Please contact Gabriel Taylor at (301) 415-0781 or via e-mail at gabriel.taylor@nrc.gov, if you would like to discuss or require any additional information.

Sincerely,

K. Coyne for /RA/

Mark Thaggard, Acting Director
Division of Risk Analysis
Office of Nuclear Regulatory Research

Enclosure:
As stated

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Enclosure:
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