

Nuclear Risk Research Center (NRRC)  
Central Research Institute of the Electric Power Industry (CRIEPI)  
1-6-1 Otemachi, Chiyoda-ku, Tokyo, 100-8126, Japan

Dr. George Apostolakis  
Director

November 1, 2021

Mr. J.W. Stetkar, Chairman  
Technical Advisory Committee

Subject: TAC REPORT ON THE FIRE PRA GUIDE (14 OCTOBER  
2021)

Dear Chairman Stetkar:

We appreciated the discussions throughout the review of our research activities on the Fire PRA Guide (FPRAG) and the Committee's insights. We thank the Committee for noting that "The Fire PRA Guide has advanced the international state-of-the-practice guidance for performing a fire PRA."

The NRRC reply to the TAC recommendations is as follows.

1. Integration of Japanese Fire Event Data

We recognize that fire event data should be integrated continuously in the data base. In the first step, we spent much time developing several technical reports that guide the engineers at the utilities; the NRRC staff was in close contact with the engineers at the utilities collecting the fire data. We hope to provide to TAC the following documents in English by the end of November 2021.

- Fire event collection guidance
- Fire data analysis guidance

We will continue to collect fire occurrence data. When FPRAG is updated and if, at that time, sufficient data are available, further descriptive information will be provided based on the experience gained from the Model Plant Study.

## 2. Guidance for Low Power and Shutdown Modes

TAC recommended that the fire PRA analysts determine whether the total internal fire risk can be further expanded to include all plant operating modes (full-power, low power, and shutdown), and whether it is warranted to expend the resources needed to make the risk values more realistic. We have the same idea and will increase our efforts to incorporate your recommendations on to the extension of the scope for the next revision of the FPRAG, especially focusing on fire ignition frequency, re-examination of the transient combustibles and fire barriers and so on.

## 3. Main Control Room (MCR) Fires

We agree with TAC's concerns regarding the methodology presented for MCR analysis. TAC's opinions and comments will be addressed in the next revision of the FPRAG, after the Model Plant Study is completed. The methodology presented in the current version is based partly on NUREG/CR-6850. We will address the issues TAC has raised when conducting the Model Plant Study. Based on that we will modify the corresponding Tasks and related appendices and provide them to TAC as soon as they are ready for review.

## 4. Fire effects on Digital Systems

We completely agree with TAC's concerns regarding "Digital Systems". We are continuing the literature survey on this topic; nevertheless, we recognize that the current state of information insufficient to be included in the FPRAG. The current version of the FPRAG addresses digital equipment and fiber optics very generally. The upgraded FPRAG after the Model Plant Study is completed will possibly address digital equipment and fiber optics in more detail, and especially if we find reliable information sources.

Sincerely,



George Apostolakis