April 23, 2014

Mr. Michael D. Tschiltz
Director, Risk Assessment
Nuclear Energy Institute
1201 F St., NW, Suite 1100
Washington, DC 20004-1218

SUBJECT: SUPPLEMENTAL INTERIM TECHNICAL GUIDANCE ON FIRE-INDUCED CIRCUIT FAILURE MODE LIKELIHOOD ANALYSIS

Dear Mr. Tschiltz:

The Office of Nuclear Regulatory Research (RES) completed supplemental interim technical guidance on Fire-Induced Circuit Failure Mode Likelihood Analysis in February 2014 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML14017A084), which supersedes an earlier issuance of similar guidance from December 2013 (ADAMS Accession No. ML13346A092). Enclosed is a copy of this supplemental interim guidance (ADAMS Accession No. ML14017A135).

This document supersedes the previous interim technical guidance in a manner similar to that in NUREG/CR-6850, "EPRI/NRC Fire PRA Methodology for Nuclear Power Facilities," for the treatment of circuit failure mode probability estimates. This supplemental interim guidance is based on the completed work of the U.S. Nuclear Regulatory Commission (NRC) and Electric Power Research Institute Fire Probabilistic Risk Analysis (PRA) Expert Elicitation panel. Several representatives from the nuclear industry were co-members of this panel.

The previous interim guidance was issued when only a fraction of the cases evaluated by the experts had been calculated and reviewed. Therefore, that guidance addressed only solenoid operating valve (SOV) spurious operation probabilities, with only bounding cases for other circuit types. This updated guidance not only repeats that from the previous, but also includes the following: (1) hot short-induced spurious operation conditional likelihood estimates for motor operated valves (MOVs) and power circuit breaker control circuits; (2) method to calculate the probabilities for exceeding specific durations of hot-short induced spurious operations for both AC and DC control circuits.

The final results of the PRA Expert Elicitation project will be published in Volume 2 of NUREG/CR-7150 later this year, and will support a future update to the methodology in NUREG/CR-6850. The results are expected to be consistent with this supplemental interim guidance, which is based on the completed work of the expert panel and is not expected to change. Volume 2 of the report will provide additional refinement to the methods for quantifying fire-induced cable damage. This Supplemental Interim Technical Guidance serves as an NRC staff position on fire-induced circuit failure mode likelihood analysis until Volume 2 is published and endorsed.

We welcome further dialogue to enhance analytical methods for use in fire PRA regulatory applications. If you have any questions, please feel free to contact Hossein Hamzehee at (301) 415-0562.

Sincerely,

Joseph G. Giitter, Director ***/RA/***
Division of Risk Assessment
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission

Enclosure:
Supplemental Interim Technical
Guidance

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Enclosure:
Supplemental Interim Technical Guidance

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