UNITED STATES
NUCLEAR REGULATORY COMMISSION
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June 13, 2019

Ms. Victoria Anderson
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1201 F St., NW, Suite 1100
Washington, DC 20004-1218

SUBJECT: INFORMATION REGARDING THE POTENTIAL FOR SECONDARY FIRES CAUSED BY FIRE-INDUCED OPEN CIRCUITS IN THE SECONDARY SIDE OF CURRENT TRANSFORMERS IN LOW AND MEDIUM VOLTAGE EQUIPMENT

Dear Ms. Anderson,

In an effort to advance the state of knowledge with regard to fire-induced circuit failures in nuclear facilities, the U.S. Nuclear Regulatory Commission's (NRC) Office of Nuclear Regulatory Research pursued the development of NUREG/CR-7150, Volume 3 "Joint Assessment of Cable Damage and Quantification of Effects from Fire (JACQUE-FIRE): Technical Resolution to Open Issues On Nuclear Power Plant Fire-Induced Circuit Failures," (JACQUE-FIRE III) available in the NRC's Agencywide Documents Access and Management System at Accession No. ML17331B098.

Current transformers (CTs), a subgroup of instrument transformers, are used throughout alternating current electrical distribution systems in nuclear power plants. A CT's secondary winding provides a current signal to an instrument, protection, or other relay circuit, often located remotely from the CT. A fire-induced open circuit in a CT's secondary side, therefore, may create a risk of a secondary fire at the CT, possibly remote to the original fire and in another fire area.

Prior to the publication of JACQUE-FIRE III, the current technical guidance was that secondary fires should be considered for CTs with a turns ratio of 1200:5 or greater in low to medium voltage equipment. One of the conclusions of JACQUE-FIRE III is that secondary fires do not need to be considered for CTs in low and medium voltage equipment (that is, 15kV and under). These failures should still be considered for CTs used in high voltage applications.

This conclusion was developed as a consensus position by technical experts based on the current best available evidence and represents the current state-of-the-art. Therefore, the NRC staff has determined that the information regarding open secondary of CTs in NUREG/CR-7150, Volume 3, is acceptable for use by licensees within the boundaries described in that document. The final guidance regarding this issue will be addressed by the next revisions to Regulatory Guides 1.189 and 1.205, which will endorse the applicable portions of this topic NEI 00-01, Revision.

Any questions regarding this recommendation should be directed to Charles Moulton at 301-415-2751.

Sincerely,

/RA/

Michael X. Franovich, Director
Division of Risk Assessment
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission

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