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[7590-01-P]

NUCLEAR REGULATORY COMMISSION

[NRC-2015-0183]

Testing of Open Secondary Window-Type Current Transformers – Test Plan

AGENCY: Nuclear Regulatory Commission.

ACTION: Draft test plan; request for comment.

SUMMARY: The U.S. Nuclear Regulatory Commission (NRC) is issuing for public comment a proposed draft test plan, "Testing of Open Secondary Window-Type Current Transformers - Test Plan." The purpose of this testing is to better understand the following scenario: Will open circuiting of the secondary circuit of a current transformer (CT), which is operating within its rated continuous primary current limits, result in an excessively high voltage in the secondary circuit sufficient to start a fire in the form of explosion or arcing in the circuit's insulation at the location of the CT itself or at some other location in the secondary circuit?

DATES: Submit comments by **[INSERT DATE 30 DAYS FROM DATE OF PUBLICATION IN *FEDERAL REGISTER*]**. Comments received after this date will be considered if it is practical to do so, but the Commission is able to ensure consideration only for comments received before this date.

ADDRESSES: You may submit comments by any of the following methods (unless this document describes a different method for submitting comments on a specific subject):

- **Federal Rulemaking Web Site:** Go to http://www.regulations.gov and search for Docket ID **NRC-2015-0183**. Address questions about NRC dockets to Carol Gallagher; telephone: 301-415-3463; e-mail: Carol.Gallagher@nrc.gov. For technical questions, contact the individual listed in the FOR FURTHER INFORMATION CONTACT section of this document.
- **Mail comments to:** Cindy Bladey, Office of Administration, Mail Stop: OWFN-12-H08, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001.

For additional direction on obtaining information and submitting comments, see "Obtaining Information and Submitting Comments" in the SUPPLEMENTARY INFORMATION section of this document.

FOR FURTHER INFORMATION, CONTACT: Shivani Mehta, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; telephone: 301-415-0860, e-mail: Shivani.Mehta@nrc.gov.

SUPPLEMENTARY INFORMATION:

I. Obtaining Information and Submitting Comments.

A. Obtaining Information.

Please refer to Docket ID **NRC-2015-0183** when contacting the NRC about the availability of information for this action. You may obtain publicly-available information related to this action by any of the following methods:

- **Federal Rulemaking Web Site:** Go to http://www.regulations.gov and search for Docket ID **NRC-2015-0183**.

- **NRC's Agencywide Documents Access and Management System (ADAMS):** You may obtain publicly-available documents online in the ADAMS Public Documents collection at http://www.nrc.gov/reading-rm/adams.html. To begin the search, select "ADAMS Public Documents" and then select "Begin Web-based ADAMS Search." For problems with ADAMS, please contact the NRC's Public Document Room (PDR) reference staff at 1-800-397-4209, 301-415-4737, or by e-mail to pdr.resource@nrc.gov. The proposed draft test plan, "Testing of Open Secondary Window-Type Current Transformers - Test Plan" is available in ADAMS under Accession No. ML15203A228.

- **NRC's PDR:** You may examine and purchase copies of public documents at the NRC's PDR, Room O1-F21, One White Flint North, 11555 Rockville Pike, Rockville, Maryland 20852.

B. Submitting Comments.

Please include Docket ID **NRC-2015-0183** in your comment submission.

The NRC cautions you not to include identifying or contact information that you do not want to be publicly disclosed in your comment submission. The NRC will post all comment submissions at http://www.regulations.gov as well as enter the comment submissions into ADAMS. The NRC does not routinely edit comment submissions to remove identifying or contact information.

If you are requesting or aggregating comments from other persons for submission to the NRC, then you should inform those persons not to include identifying or contact information that they do not want to be publicly disclosed in their comment submission. Your request should

state that the NRC does not routinely edit comment submissions to remove such information before making the comment submissions available to the public or entering the comment submissions into ADAMS.

II. Discussion.

The NRC is issuing for public comment a proposed draft test plan. The purpose of this test program is to better understand and obtain information to form a technical basis for assessing the propensity of a secondary fire or damage to the secondary side circuit or components as a result of an open-circuited current transformer (CT) secondary winding. Specifically, the test program will allow investigation of the high-voltage in the secondary circuit to determine if it is sufficient to induce a fire in the circuit's insulation at the CT location or within the secondary circuit.

The NRC is seeking public comment in order to receive feedback from the widest range of interested parties and to ensure that all information relevant to developing this document is available to the NRC staff. This document is issued for comment only and is not intended for interim use. The NRC will review public comments received on the documents, incorporate suggested changes as necessary, and make the final test plan available to the public through ADAMS and http://www.regulations.gov at Docket ID **NRC-2015-0183**, and will be documented in the final test report. No responses will be provided to specific commenters in regards to the disposition of their comments.

Current transformers (CTs) are widely used to monitor the current at strategic locations of electrical power distribution systems in nuclear power plants (NPPs). The CTs provide isolation from the high-voltage primary, and step-down the magnitude of the measured current

to a value that can be safely handled by the monitoring instruments. Thus, they are designed to measure the current in alternating current (AC) power systems (generally three-phase systems) in their primary winding and transform this current into a representative low secondary current for instrumentation used for remote readout of the current. An open-circuit in a CT's secondary winding can cause high voltages on the secondary circuit as the CT attempts to maintain the current relationship dictated by the transformer's winding turns ratio. The resulting high voltage condition in the secondary circuit from an open-circuited CT introduces a potential failure mode that warrants further investigation as part of the final resolution of circuit failure issues associated with the fire protection strategies at nuclear power plants. Specifically, an open circuit on a high voltage CT circuit may result in secondary damage, possibly resulting in the occurrence of an additional fire in the location of the CT itself or at a location remote to the CT. This potential event is described in Section 3.5.2.1 of the NEI 00-01, Revision 2 (ADAMS

Accession No. ML091770265), and endorsed by Regulatory Guide 1.189, Revision 2 (ADAMS under Accession No. ML092580550).

Accordingly, the purpose of this test program is to better understand and obtain information to form a technical basis for assessing the propensity of a secondary fire or damage to the secondary side circuit or components under an open-circuited CT secondary winding. Specifically, the test program will allow investigation of the high-voltage in the secondary circuit to determine if it is sufficient to induce a fire in the circuit's insulation at the CT location or within the secondary circuit.

Dated at Rockville, Maryland, this 27day of July 2015.

For the Nuclear Regulatory Commission.

Felix Gonzalez, Acting Chief,
Fire Research Branch,
Division of Risk Analysis,
Office of Nuclear Regulatory Research.

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