

**NUCLEAR REGULATORY COMMISSION**

**[NRC-2015-0060]**

**Heat Release Rates of Electrical Enclosure Fires (HELEN-FIRE)**

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Draft NUREG; request for comment.

**SUMMARY:** The U.S. Nuclear Regulatory Commission (NRC) is issuing for public comment a draft NUREG, NUREG/CR-7197, "Heat Release Rates of Electrical Enclosure Fires (HELEN-FIRE)."

**DATES:** Submit comments by June 15, 2015. 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-2015-0060**. Address questions about NRC dockets to Carol Gallagher; telephone: 301-415-3463; e-mail: [Carol.Gallagher@nrc.gov](mailto: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:** David Stroup, Office of Nuclear Regulatory Research; telephone: 301-251-7609; e-mail: [David.Stroup@nrc.gov](mailto:David.Stroup@nrc.gov); U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001.

## **SUPPLEMENTARY INFORMATION:**

### **I. Obtaining Information and Submitting Comments.**

#### **A. Obtaining Information.**

Please refer to Docket ID **NRC-2015-0060** 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-2015-0060**.

- **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](mailto:pdr.resource@nrc.gov). The ADAMS accession number for each document referenced (if it is available in ADAMS) is provided the first time that it is mentioned in the SUPPLEMENTARY INFORMATION section. Draft NUREG/CR-7197, "Heat Release Rates of Electrical Enclosure Fires (HELEN-FIRE)" is available in ADAMS under Accession No. **ML15075A495**.

- **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-2015-0060** in the subject line of your comment submission.

The NRC cautions you not to include identifying or contact information that you do not want to be publically 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 into ADAMS.



## II Discussion.

Electrical enclosures are a potential source of fire in nuclear power plants because they contain both combustible materials and live electrical circuits. These fires have the potential to disrupt power, instrumentation, and control in the plant. Key parameters affecting fire in an electrical enclosure include its size, openings, electrical voltage, and combustible load. This report documents the results from 112 full-scale experiments conducted by the National Institute of Standards and Technology at the Chesapeake Bay Detachment of the Naval Research Laboratory to better quantify the heat release rate (HRR) and burning behavior of electrical enclosures. Eight electrical enclosures were acquired from Bellefonte Nuclear Generating Station, a plant owned by the Tennessee Valley Authority located in Hollywood, Alabama. The enclosures were originally low voltage control cabinets, but in the experiments they were reconfigured with various amounts and types of electrical cable to represent other kinds of enclosures that would be found in a typical plant. An oxygen consumption calorimeter was built on site to measure the HRR of the fire as a function of time. The peak HRR varied from 0.3 kW to 576 kW.

Dated at Rockville, Maryland, this 21<sup>st</sup> day of April, 2015.

For the Nuclear Regulatory Commission.



Mark Henry Salley, Chief,  
Fire Research Branch,  
Division of Risk Analysis,  
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