[7590-01-P]

NUCLEAR REGULATORY COMMISSION

[NRC-2019-0043]

Credibility Assessment Framework for Critical Boiling Transition Models

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 (U.S. Nuclear Regulatory Commission technical report designation), knowledge management NUREG (NUREG/KM) -0013, "Credibility Assessment Framework for Critical Boiling Transition Models." This NUREG describes NRC past practice and staff experience in determining the credibility of critical heat flux and critical power models and, based on that experience, presents an assessment framework that combines aspects of goal structuring notation and maturity assessment.

DATES: Submit comments by **[INSERT DATE 60 DAYS AFTER DATE OF PUBLICATION IN THE *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: Please refer to Docket ID **NRC-2019-0043** when contacting the NRC about the availability of information regarding this document. You may submit comments by any of the following methods:

- **Federal Rulemaking Web Site:** Go to http://www.regulations.gov and search for Docket ID **NRC-2019-0043**. Address questions about NRC dockets IDs in Regulations.gov to Jennifer Borges; telephone: 301-287-9127; e-mail: Jennifer.Borges@nrc.gov. For technical questions, contact the individual listed in the **FOR FURTHER INFORMATION CONTACT** section of this document.

- **Mail comments to:** Office of Administration, Mail Stop: TWFN-7-A60M, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, ATTN: Program Management, Announcements and Editing Staff.

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: Joshua Kaizer, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; telephone: 301-415-1532, e-mail: Joshua.Kaizer@nrc.gov.

SUPPLEMENTARY INFORMATION:

I. Obtaining Information and Submitting Comments

A. Obtaining Information

Please refer to Docket ID **NRC-2019-0043** 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-2019-0043**.

- **NRC's Agencywide Documents Access and Management System (ADAMS):** You may obtain publicly available documents online in the ADAMS Public Document collection at https://www.nrc.gov/reading-rm/adams.html. To begin the search, select "Begin Web-based ADAMS Search." For problems with ADAMS, 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 ADAMS accession number for each document referenced (if it is available in ADAMS) is provided the first time that it is mentioned in this document. Draft NUREG/KM-0013 is available in ADAMS under

Accession No. ML19073A249.

- **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-2019-0043** 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 into ADAMS.

II. Discussion

Critical boiling transition (CBT) occurs when a flow regime that has a higher heat transfer rate transitions to a flow regime that has a significantly lower heat transfer rate. Models that predict a CBT are a necessary part of reactor safety analysis because they are used to determine plant safety limits. Therefore, the review of CBT models has been a focus of the NRC since its inception in 1975.

Draft NUREG/KM-0013 describes NRC practice and staff experience in evaluating CBT models and organizes that practice and staff experience in the form of a credibility assessment framework that combines aspects of goal structure notation and

maturity assessment. The NRC has performed many such assessments in the past and has generated this framework based on the experience of the current NRC staff and previous reviews performed by the staff as summarized in its evaluations. This document includes a survey of the important technical and regulatory literature; a detailed technical discussion of CBT models and their application; and a framework for CBT models that reflects NRC practice as a whole, including the level of evidence previously accepted to address the various issues relevant to the evaluation of CBT models. Accordingly, the NRC is requesting comments on the NUREG-0013/KM description of the NRC practice and experience in evaluating CBT models and the adequacy of the assessment framework presented.

The framework presented in NUREG-0013/KM is intended as a "textbook" reference for those interested in the assessment of the credibility of CBT models, particularly as applied to reactor safety analysis. Nonetheless, Draft NUREG-0013/KM is not guidance to the NRC staff, applicants for NRC licenses, or current NRC licensees, and, if finalized, would not constitute backfitting, as defined in title 10 of the *Code of Federal Regulations* (10 CFR) 50.109 (the Backfit Rule), or otherwise be inconsistent with the issue finality provisions in 10 CFR part 52. In the future, the NRC staff may decide to reference NUREG-0013/KM in guidance to the NRC staff or guidance to applicants or licensees, *i.e.*, through an update to the Standard Review Plan or new Interim Staff Guidance, or update to a Regulatory Guide, respectively. Should the NRC staff decide to do so, the NRC staff will seek public comment on the use of NUREG-0013/KM as guidance and will assess any 10 CFR 50.109 backfitting and part 52 issue finality considerations arising from such use.

Dated at Rockville, Maryland, this 20th day of March 2019.

For the Nuclear Regulatory Commission.

Robert G. Lukes, Chief,
Nuclear Performance and Code Review,
Division of Safety Systems,
Office of Nuclear Reactor Regulation.

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