

NUCLEAR REGULATORY COMMISSION

10 CFR Parts 50 and 52

[NRC-2022-0143]

Draft Regulatory Guide: Criteria for Programmable Digital Devices in Safety-Related Systems of Nuclear Power Plants

AGENCY: Nuclear Regulatory Commission

ACTION: Proposed guide; request for comment.

SUMMARY: The U.S. Nuclear Regulatory Commission (NRC) is issuing for public comment a draft regulatory guide (DG), DG-1374, "Criteria for Programmable Digital Devices in Safety-Related Systems of Nuclear Power Plants." This DG is proposed Revision 4 of Regulatory Guide (RG) 1.152, "Criteria for Use of Computers in Safety Systems of Nuclear Power Plants." DG-1374 describes an approach that is acceptable to the NRC staff to meet regulatory requirements for promoting high functional reliability, design quality, and a secure development and operational environment (SDOE) for the use of programmable digital devices (PDDs) in the safety-related systems of nuclear power generating stations.

DATES: Submit comments by **April 10, 2023**. Comments received after this date will be considered if it is practical to do so, but the NRC is able to ensure consideration only for comments received on or before this date.

ADDRESSES: You may submit comments by any of the following methods; however, the NRC encourages electronic comment submission through the **Federal rulemaking website**:

- **Federal rulemaking website:** Go to <https://www.regulations.gov> and search for Docket ID **NRC-2022-0143**. Address questions about Docket IDs in Regulations.gov to Stacy Schumann; telephone: 301-415-0624; email: Stacy.Schumann@nrc.gov. For technical questions, contact the individuals 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: Michael Eudy, Office of Nuclear Regulatory Research, telephone: 301-415-3104, email: Michael.Eudy@nrc.gov and Khoi Nguyen, Office of Nuclear Reactor Regulation, telephone: 301-415-6839, email: Khoi.Nguyen@nrc.gov. Both are staff of the 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-2022-0143** 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 Website:** Go to <https://www.regulations.gov> and search for Docket ID **NRC-2022-0143**.

- **NRC's Agencywide Documents Access and Management System**

(ADAMS): You may obtain publicly available documents online in the ADAMS Public Documents collection at <https://www.nrc.gov/reading-rm/adams.html>. To begin the search, 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 email 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.

- **NRC's PDR:** You may examine and purchase copies of public documents, by appointment, at the NRC's PDR, Room P1 B35, One White Flint North, 11555 Rockville Pike, Rockville, Maryland 20852. To make an appointment to visit the PDR, please send an email to PDR.Resource@nrc.gov or call 1-800-397-4209 or 301-415-4737, between 8 a.m. and 4 p.m. eastern time (ET), Monday through Friday, except Federal holidays.

B. Submitting Comments

The NRC encourages electronic comment submission through the **Federal rulemaking website** (<https://www.regulations.gov>). Please include Docket ID **NRC-2022-0143** 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 <https://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. Additional Information

The NRC is issuing for public comment a DG in the NRC's "Regulatory Guide" series. This series was developed to describe methods that are acceptable to the NRC staff for implementing specific parts of the agency's regulations, to explain techniques that the staff uses in evaluating specific issues or postulated events, and to describe information that the staff needs in its review of applications for permits and licenses.

The DG, entitled "Criteria for Programmable Digital Devices in Safety-Related Systems of Nuclear Power Plants," is temporarily identified by its task number, DG-1374 (ADAMS Accession No. ML23012A242).

This revision (Revision 4) of the guide endorses the Institute of Electrical and Electronic Engineers (IEEE) Standard (Std) 7-4.3.2-2016, "IEEE Standard Criteria for Programmable Digital Devices in Safety Systems of Nuclear Power Generating Stations," with some exceptions and clarifications. Specifically, this revision removes the previous SDOE guidance from this guide and instead endorses, with clarifications, the SDOE criteria within IEEE Std 7-4.3.2-2016. This revision also includes additional guidance for fault detection and self-diagnostics, if used, in Digital Instrumentation and Control systems. In addition, this revision endorses Annex D of IEEE Std 7-4.3.2-2016 and clarifies the applicability of the control of access guidance for safety-related PDDs.

The staff is also issuing for public comment a draft regulatory analysis (ADAMS Accession No. ML22132A293). The staff developed a regulatory analysis to assess the value of issuing or revising a regulatory guide as well as alternative courses of action.

As noted in the *Federal Register* on December 9, 2022 (87 FR 75671), this document is being published in the “Proposed Rules” section of the *Federal Register* to comply with publication requirements under 1 CFR chapter I.

III. Backfitting, Forward Fitting, and Issue Finality

If finalized, the NRC staff may use this DG as a reference in its regulatory processes, such as licensing, inspection, or enforcement. However, the NRC staff does not intend to use the guidance in this DG to support NRC staff actions in a manner that would constitute backfitting as that term is defined in Section 50.109 of title 10 of the *Code of Federal Regulations* (10 CFR), “Backfitting,” and as described in NRC Management Directive (MD) 8.4, “Management of Backfitting, Forward Fitting, Issue Finality, and Information Requests,” nor does the NRC staff intend to use the guidance to affect the issue finality of an approval under 10 CFR Part 52, “Licenses, Certifications, and Approvals for Nuclear Power Plants.” The staff also does not intend to use the guidance to support NRC staff actions in a manner that constitutes forward fitting as that term is defined and described in MD 8.4. If a licensee believes that the NRC is using this regulatory guide in a manner inconsistent with the discussion in this Implementation section, then the licensee may file a backfitting or forward fitting appeal with the NRC in accordance with the process in Management Directive 8.4.

IV. Submitting Suggestions for Improvement of Regulatory Guides

A member of the public may, at any time, submit suggestions to the NRC for improvement of existing RGs or for the development of new RGs. Suggestions can be submitted on the NRC’s public website at <https://www.nrc.gov/reading-rm/doc->

[collections/reg-guides/contactus.html](#). Suggestions will be considered in future updates and enhancements to the “Regulatory Guide” series.

Dated: March 3, 2023.

For the Nuclear Regulatory Commission.

/RA/

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