



## NUCLEAR REGULATORY COMMISSION

### 10 CFR Parts 50 and 52

[NRC-2022-0073]

#### **Regulatory Guide: Guidance for a Technology-Inclusive Content of Application Methodology to Inform the Licensing Basis and Content of Applications for Licenses, Certifications, and Approvals for Non-Light-Water Reactors**

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Final guide; issuance.

**SUMMARY:** The U.S. Nuclear Regulatory Commission (NRC) is issuing a new Regulatory Guide (RG) 1.253, Revision 0, “Guidance for a Technology-Inclusive Content of Application Methodology to Inform the Licensing Basis and Content of Applications for Licenses, Certifications, and Approvals for Non-Light-Water Reactors.” This new RG provides guidance to assist interested parties and prospective applicants in the development of content for major portions of their safety analysis reports required in applications for permits, licenses, certifications, and approvals by the NRC to ensure that applications for non-light water reactor (non-LWR) facility designs using the Licensing Modernization Project (LMP) process meet the minimum requirements for construction permit, operating license, combined license, or design certification applications.

**DATES:** RG 1.253, Revision 0, is available on **[INSERT DATE OF PUBLICATION IN THE FEDERAL REGISTER]**.

**ADDRESSES:** Please refer to Docket ID **NRC-2022-0073** when contacting the NRC about the availability of information regarding this document. You may obtain publicly available information related to this document using any of the following methods:

- **Federal Rulemaking Website:** Go to <https://www.regulations.gov> and search for Docket ID **NRC-2022-0073**. 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.

- **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, at 301-415-4737, or by email 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 this document.

- **NRC’s PDR:** The PDR, where you may examine and order copies of publicly available documents, is open by appointment. To make an appointment to visit the PDR, please send an email to [PDR.Resource@nrc.gov](mailto: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.

RG 1.253 and the regulatory analysis may be found in ADAMS under Accession Nos. ML23269A222 and ML22076A002, respectively.

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**FOR FURTHER INFORMATION CONTACT:** Anders Gilbertson, Office of Nuclear Reactor Regulation, telephone: 301-415-1541, email: [Anders.Gilbertson@nrc.gov](mailto:Anders.Gilbertson@nrc.gov) and Ramon Gascot Lozada, Office of Nuclear Regulatory Research, telephone: 301-415-2004, email: [Ramon.GascotLozada@nrc.gov](mailto:Ramon.GascotLozada@nrc.gov). Both are staff of the U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001.

**SUPPLEMENTARY INFORMATION:**

**I. Discussion**

The NRC staff is issuing a new guide 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, certifications, approvals, and licenses.

RG 1.253, Revision 0, "Guidance for a Technology-Inclusive Content of Application Methodology to Inform the Licensing Basis and Content of Applications for Licenses, Certifications, and Approvals for Non-Light-Water Reactors," provides guidance to assist interested parties and prospective applicants in the development of content for major portions of their safety analysis reports required in applications for permits, licenses, certifications, and approvals by the NRC to ensure that applications for non-LWR facility designs using the LMP process meet the minimum requirements for construction permit, operating license, combined license, or design certification applications.

## **II. Additional Information**

RG 1.253 was issued as a draft regulatory guide (DG) with a temporary identification of DG-1404 (ADAMS Accession No. ML22076A003).

The NRC published DG-1404, Revision 0 in the *Federal Register* on May 25, 2023 (88 FR 33846), for a 45-day public comment period. Subsequently, the comment period was extended by 30-days as noted in the *Federal Register* June 28, 2023 (88 FR 41862). The public comment period closed on August 10, 2023. On September 8, 2023, the NRC published a request for public comment on Revision 1 to DG-1404 in the *Federal Register* (88 FR 61989). Revision 1 to DG-1404 provided additional guidance for the scope, level of detail, elements and plant representation for a probabilistic risk assessment supporting an LMP-based construction permit application. The public comment period for Revision 1 to DG-1404 closed on October 10, 2023. Public comments on DG-1404 Revision 0 and Revision 1, and the staff responses to the public comments are available in ADAMS under Accession No. ML23269A223.

The NRC staff anticipates the submission of advanced power-reactor

applications within the next few years based on preapplication engagement initiated by several prospective applicants. Because many of these designs are non-LWRs, the NRC staff developed technology-inclusive, risk-informed, performance-based guidance to support the development of major portions of safety analysis report content for these non-LWR applications. The guidance describes the development of major portions of the safety analysis report using the industry-developed guidance contained in Nuclear Energy Institute (NEI) 21-07, Revision 1, "Technology Inclusive Guidance for Non-Light-Water Reactors, Safety Analysis Report Content for Applicants Using the NEI 18-04 Methodology," (ADAMS Accession No. ML22060A190). The guidance will facilitate the development of non-LWR applications for construction permits or operating licenses under part 50 of title 10 of the *Code of Federal Regulations* (10 CFR), "Domestic Licensing of Production and Utilization Facilities," or combined licenses or design certifications under 10 CFR part 52, "Licenses, Certifications, and Approvals for Nuclear Power Plants."

The NRC staff notes it is developing a rule to amend parts 50 and 52 to align reactor licensing processes and incorporate lessons learned from new reactor licensing into the regulations (RIN 3150-AI66). This RG may need to be updated to conform to changes to 10 CFR parts 50 and 52, if any, adopted through that rulemaking. Further, as of the date of this RG, the NRC staff is developing an optional performance-based, technology-inclusive regulatory framework for licensing nuclear power plants designated as 10 CFR part 53 (RIN 3150-AK31). The NRC intends to revise this guidance as a part of the ongoing rulemaking for 10 CFR part 53.

To standardize the development of content of a non-LWR application, the staff focused on two activities: the Advanced Reactor Content of Application Project (ARCAP) and the Technology-Inclusive Content of Application Project (TICAP). The ARCAP is an NRC-led activity that is intended to result in guidance for a complete non-LWR application for review under 10 CFR part 50 or 10 CFR part 52, and which the staff would update, as appropriate, pending the issuance of the 10 CFR part 50 and

10 CFR part 52 rulemaking previously mentioned in this document, or if the Commission issues a final 10 CFR part 53 rule.

The TICAP is an industry led guidance activity focused on the scope and depth of information to include in the portions of a safety analysis report that address the implementation of the LMP methodology described in NEI 18-04, Revision 1, and endorsed by the NRC in Regulatory Guide 1.233, “Guidance for a Technology-Inclusive, Risk-Informed, and Performance-Based Methodology to Inform the Licensing Basis and Content of Applications for Licenses, Certifications, and Approvals for Non-Light-Water Reactors,” (ADAMS Accession No. ML20091L698).

During the 711th meeting of the Advisory Committee on Reactor Safeguards (ACRS), December 6-7, 2023, the ACRS, the NRC staff, and representatives of other stakeholders discussed guidance documents related to the ARCAP and the TICAP. On December 20, 2023, the ACRS issued a report documenting its review of these guidance documents (ADAMS Accession No. ML23348A182). The conclusions and recommendations in the ACRS report apply to all the ARCAP and TICAP guidance documents. In its December 2023 report, the ACRS also recommended specific changes to DG-1404. As set forth in its letter dated March 18, 2024, (ADAMS No. ML24024A025) in which the NRC staff responded to the ACRS report, the NRC staff revised RG 1.253 to address specific ACRS recommendations.

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

The table in this rulemaking provides the document description, ADAMS accession number, and, if appropriate, the docket identification number on supporting documents associated with the document that is the subject of this *Federal Register* document.

<b>Document Description</b>	<b>ADAMS Accession No.</b>	<b>Regulations.gov Docket ID No.</b>
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RG 1.253, Revision 0, "Guidance for a Technology-Inclusive Content of Application Methodology to Inform the Licensing Basis and Content of Applications for Licenses, Certifications, and Approvals for Non-Light-Water Reactors."	ML23269A222	NRC-2022-0073
Regulatory Analysis for DG-1404	ML22076A002	NRC-2022-0073
Interim Staff Guidance DANU-ISG-2022-01, "Advanced Reactor Content of Application Project, 'Review of Risk-Informed, Technology Inclusive Advanced Reactor Applications - Roadmap.'"	ML23277A139	NRC-2022-0074
Interim Staff Guidance DANU-ISG-2022-02, "Advanced Reactor Content of Application Project Chapter 2, 'Site Information.'"	ML23277A140	NRC-2022-0075
Interim Staff Guidance DANU-ISG-2022-03, "Advanced Reactor Content of Application Project Chapter 9, 'Control of Routine Plant Radioactive Effluents, Plant Contamination and Solid Waste.'"	ML23277A141	NRC-2022-0076
Interim Staff Guidance DANU-ISG-2022-04, "Advanced Reactor Content of Application Project Chapter 10, 'Control of Occupational Dose.'"	ML23277A142	NRC-2022-0077
Interim Staff Guidance DANU-ISG-2022-05, "Advanced Reactor Content of Application Project Chapter 11, 'Organization and Human-System Considerations.'"	ML23277A143	NRC-2022-0078
Interim Staff Guidance DANU-ISG-2022-06, "Advanced Reactor Content of Application Project Chapter 12, 'Post-manufacturing and construction Inspection, Testing, and Analysis Program.'"	ML23277A144	NRC-2022-0079
Interim Staff Guidance DANU-ISG-2022-07, "Advanced Reactor Content of Application Project, 'Risk-Informed Inservice Inspection/Inservice Testing Programs for Non-LWRs.'"	ML23277A145	NRC-2022-0080
Interim Staff Guidance DANU-ISG-2022-08, "Advanced Reactor Content of Application Project, 'Risk-Informed Technical Specifications.'"	ML23277A146	NRC-2022-0081
Interim Staff Guidance DANU-ISG-2022-09, "Advanced Reactor Content of Application Project, 'Risk-Informed Performance-Based Fire Protection Program (for Operations).'"	ML23277A147	NRC-2022-0082
Review of Advanced Reactor Content of Application Project/Technology-Inclusive Content of Application Project Guidance	ML23348A182	NRC-2022-0074
Response to the Advisory Committee on Reactor Safeguards Letter, "Review of Advanced Reactor Content of Application Project/Technology-Inclusive Content of Application Project Guidance"	ML24024A025	NRC-2022-0074

### **III. Congressional Review Act**

This RG is a rule as defined in the Congressional Review Act (5 U.S.C. 801-808). However, the Office of Management and Budget has not found it to be a major rule as defined in the Congressional Review Act.

### **IV. Backfitting, Forward Fitting, and Issue Finality**

RG 1.253, Revision 0, does not constitute backfitting as defined in 10 CFR 50.109, "Backfitting," and as described in Management Directive (MD) 8.4, "Management of Backfitting, Forward Fitting, Issue Finality, and Information Requests"; does not constitute forward fitting as that term is defined and described in MD 8.4; and does not affect the issue finality of any approval issued under 10 CFR part 52. The guidance would not apply to any current licensees or applicants or existing or requested approvals under 10 CFR part 52, and therefore its issuance cannot be a backfit or forward fit or affect issue finality. Further, as explained in RG 1.253, applicants and licensees would not be required to comply with the positions set forth in RG 1.253.

### **V. 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 28, 2024.

For the Nuclear Regulatory Commission.

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