[7590-01-P]

NUCLEAR REGULATORY COMMISSION

10 CFR Parts 50 and 52

[NRC-2021-0117]

Acceptability of ASME Code, Section III, Division 5, High Temperature Reactors

AGENCY: Nuclear Regulatory Commission.

ACTION: Regulatory guide; NUREG; issuance.

SUMMARY: The U.S. Nuclear Regulatory Commission (NRC) is issuing Revision 2 to Regulatory Guide (RG), 1.87, "Acceptability of ASME Code, Section III, Division 5, 'High Temperature Reactors.'" This RG describes an approach that is acceptable to the NRC staff to assure the mechanical/structural integrity of components that operate in elevated temperature environments and that are subject to time-dependent material properties and failure modes. It endorses, with exceptions and limitations, the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel (BPV) Code (ASME Code) Section III, "Rules for Construction of Nuclear Facility Components," Division 5, "High Temperature Reactors," and Code Cases N-861, N-862, N-872, and N-898. The NRC is also issuing NUREG-2245, "Technical Review of the 2017 Edition of ASME Section III, Division 5, 'High Temperature Reactors,'" that documents the NRC staff's review of the 2017 Edition of ASME Section III, Division 5, certain portions of the 2019 Edition, and Code Cases N-861 and N-862. The technical basis for the NRC's endorsement of Code Cases N-872 and N-898 is contained in Technical Letter Report (TLR)-RES/DE/REB-2022-01, "Review of Code Cases Permitting Use of Nickel-Based Alloy 617 in Conjunction with ASME Section III, Division 5."

DATES: Revision 2 to RG 1.87 is available on **[INSERT DATE OF PUBLICATION IN THE *FEDERAL REGISTER*]**.

ADDRESSES: Please refer to Docket ID **NRC-2021-0117** 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-2021-0117**. 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, 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 Public Document Room (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.

Revision 2 to RG 1.87 and the regulatory analysis may be found in ADAMS under Accession Nos. ML22101A263 and ML21091A277, respectively.

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FOR FURTHER INFORMATION CONTACT: Jeffrey Poehler, Office of Nuclear Regulatory Research, telephone: 301-415-8353, email: Jeffrey.Poehler@nrc.gov and Robert Roche-Rivera, Office of Nuclear Regulatory Research, telephone: 301-415-8113, email: Robert.Roche-Rivera@nrc.gov. Both are staff of the U.S. Nuclear

Regulatory Commission, Washington, DC 20555-0001.

SUPPLEMENTARY INFORMATION:

I. Discussion

The NRC is issuing a revision 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 proposed Revision 2 to RG 1.87 was issued with a temporary identification of Draft Regulatory Guide, DG-1380. This revision (Revision 2) updates the guidance to endorse, with exceptions and limitations, the 2017 Edition of ASME Code Section III, Division 5, as a method acceptable to the staff for the materials, mechanical/structural design, construction, testing, and quality assurance of mechanical systems and components and their supports of high-temperature reactors. The NRC staff is also endorsing use of certain values in the 2019 Edition of ASME Code, Section II, "Materials," Part D, "Properties (Metric)" and Mandatory Appendix HBB-I-14 of the 2019 Edition of the ASME Code, Section III, Division 5 for limited use. This revision of the guide also endorses the Code Cases N-861, N-862, N-872, and N-898 related to ASME Code, Section III, Division 5. The technical basis for NRC's endorsement of the ASME Code Section III, Division 5, and code cases N-861 and N-862 is contained in NUREG-2245. The technical basis for the NRC's endorsement of Code Cases N-872 and N-898 is contained in Technical Letter Report (TLR)-RES/DE/REB-2022-01, "Review of Code Cases Permitting Use of Nickel-Based Alloy 617 in Conjunction with ASME Section III, Division 5," dated January 31, 2022. In addition to the above, Revision 2 to RG 1.87 provides guidance for the quality group classification of components in non-LWR designs.

II. Additional Information

The NRC published a notice of the availability of DG-1380 in the *Federal Register* on August 20, 2021 (86 FR 46888) for a 60-day public comment period. The public comment period closed on October 19, 2021. Subsequent to the public comment period for DG-1380, the NRC staff completed its review of Code Cases N-872 and N-898, related to the use of Nickel-Based Alloy 617. On March 1, 2022, the NRC staff issued a supplemental *Federal Register* notice (87 FR 11490) to DG-1380 requesting public comment on the staff's proposed endorsement of Code Cases N-872 and N-898. Public comments on DG-1380 and the staff responses to the public comments are available in ADAMS (see the "Availability of Documents" table in section IV).

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.

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 1.87, Revision 2, does not constitute backfitting as 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"; constitute forward fitting as that term is defined and described in MD 8.4; or affect the issue finality of any approval issued under 10 CFR part 52, "Licenses, Certificates, and Approvals for Nuclear Power Plants." The guidance does 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 1.87, Revision 2, applicants and licensees are not required to comply with the positions set forth in RG 1.87, Revision 2.

V. Availability of Documents

Document	ADAMS Accession No.
RG 1.87, Revision 2, "Acceptability of ASME Code, Section III, Division 5, 'High Temperature Reactors,'" dated January 2023	ML22101A263
Regulatory Analysis for RG 1.87, Revision 2	ML21091A277
DG-1380 (Proposed Revision 2 to RG 1.87), "Acceptability of ASME Code, Section III, Division 5, 'High Temperature Reactors,'" dated August 2021	ML21091A276
NUREG-2245, "Technical Review of the 2017 Edition of ASME Section III, Division 5, 'High Temperature Reactors,'" dated January 2023	ML23030B636
TLR-RES/DE/REB-2022-01, "Review of Code Cases Permitting Use of Nickel-Based Alloy 617 in Conjunction with ASME Section III, Division 5," dated January 31, 2022	ML22031A137
Response to Public Comments on DG-1380, dated January 2023	ML22101A267
MD 8.4, "Management of Backfitting, Forward Fitting, Issue Finality, and Information Requests," dated September 20, 2019	ML18093B087

VI. 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: February 1, 2023.

For the Nuclear Regulatory Commission.

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