

Periodic Review

Regulatory Guide Number: 1.124, Revision 3

Title: Service Limits and Loading Combinations for Class 1 Linear-Type Supports

Office/division/branch: NRR/DEX/EMIB

Technical Lead: Chakrapani Basavaraju

Staff Action Decided: Revise

1. What are the known technical or regulatory issues with the current version of the Regulatory Guide (RG)?

Regulatory Guide 1.124, Revision 3 (Rev. 3), "Service Limits And Loading Combinations For Class 1 Linear-Type Supports," establishes the NRC's position for an acceptable approach to evaluate Linear Type Supports for various service limits and appropriate combinations of loadings associated with normal operation, postulated accidents, and specified seismic events for the design of Class 1 linear-type component and piping supports, as defined in Subsection NF of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (BPVC), Section III, "Rules for Construction of Nuclear Power Plant Components" that the staff of the U.S. Nuclear Regulatory Commission (NRC) considers acceptable. This guide applies to light-water-cooled reactors.

This RG needs to be revised due to the following issues:

- a) This RG is based on information in 2007 edition including 2008 Addenda of ASME B&PV Code, Section III, Subsection NF. Subsection NF made changes in 2010, 2013, 2015, 2017, 2019, and 2021 editions. At this time, the latest edition of ASME BPVC Section III Code is 2021 edition. Some of the paragraphs of subsection NF have changed because some were deleted and additional paragraphs were added in 2021 Edition of Section III, subsection NF.
- b) This RG also used Non-Mandatory Appendix-F (NMA-F) of Section III for Service Level-D. This NMA-F is changed to a Mandatory Appendix-XXVII (MA-XXVII) since 2017 edition of the ASME BPVC Section III. Several paragraphs referring to NMA-F need to be revised to point to MA-XXVII.

2. What is the impact on internal and external stakeholders of not updating the RG for the known issues, in terms of anticipated numbers of licensing and inspection activities over the next several years?

For repair/replacement activities related to operating reactors, the licensees can move to later editions of the code in lieu of the original design code with adequate reconciliation. If the RG is not updated, the licensees have to limit to the 2007 edition 2008 addenda.

New reactor applicants such as NUSCALE, and SMRs use 2017 or later code editions, and it will be an issue and a limitation if this RG is not revised. In addition, the guidance for NRC technical reviewers will not be up to date and will be an issue if this RG is not revised.

3. What is an estimate of the level of effort needed to address identified issues in terms of full-time equivalent (FTE) and contractor resources?

The estimated level of effort to revise this RG is 200 hours (approximately 0.1 FTE). No contractor support is needed. No significant coordination with other NRC offices (other than the Office of Research) is necessary.

5. Provide a conceptual plan and timeframe to address the issues identified during the review.

The plan to revise these NF paragraphs in this RG includes review and appropriate revision of all paragraphs that cited NF paragraphs in Sections B and C of this RG with correct paragraphs of NF in the latest code edition. The revision effort of this RG also includes review and appropriate revision of paragraphs that cited nonmandatory Appendix-F in Sections B of this RG with correct paragraphs of mandatory Appendix-XXVII in the latest code edition. The staff plans to develop a draft guide and issue for public comment in CY 2024.

REFERENCES

1. American Society of Mechanical Engineers (ASME), Section III, "Rules for Construction of Nuclear Power Plant Components," ASME Boiler and Pressure Vessel Code, American Society of Mechanical Engineers, New York, NY., Subsection NF, and Mandatory Appendix-XXVII, 2021 edition.

NOTE: This review was conducted in September 2023 and reflects the staff's plans as of that date. These plans are tentative and subject to change.