

Regulatory Guide Periodic Review

Regulatory Guide Number: 1.57, Revision 3

Title: Design Limits and Loading Combinations for Metal Primary Reactor Containment System Components

Office/division/branch: RES/DE/SGSEB

Technical Lead: Ramón L. Gascot Lozada

Staff Action Decided: Reviewed with no issues identified

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

Regulatory Guide (RG) 1.57, Revision 2 (Rev. 2), "Design Limits and Loading Combinations for Metal Primary Reactor Containment System Component," issued in May 2013 describes an approach that the staff of the U.S. Nuclear Regulatory Commission (NRC) considers acceptable for use in designing metal primary reactor containment system components and approves methods for demonstrating structural integrity. RG 1.57 endorses, in part, the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code. Specifically, Section III, Division 1, Subsection NE, Class MC Components, "Rules for Construction of Nuclear Facility Components" and Section XI, "Rules for In-service Inspection of Nuclear Power Plant Components."

This RG provides guidance on the use of codes and standards for the design of advance reactors, current light-water reactors, and advanced reactors in order to ensure that structures, systems, and components (SSCs) will perform their intended function. In addition, the RG delineates acceptable design limits for appropriate combinations on loadings. The approach set forth in this guide is directly related to the endorsed codes and the design limits were adopted to provide assurance of maintaining the pressure-retaining integrity of the primary reactor containment. At this moment, no technical or regulatory issue was identified, either in the endorsed references, or the delineated design limits and loads combinations.

Staff review concludes that RG 1.57 need not be updated until a further need arises for NRC's licensing activities and recommends to continue with the current version of the Regulatory Guide.

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?

The references endorsed on this RG are based on the current class of light water reactors and, as such, may not adequately address the design and construction features of the next generation of advanced reactors. However, current RG 1.57 provides guidance for design limits and load combinations for current light water reactors and advanced reactors. In addition, no technical or regulatory issues were identified. As result, there is no impact to internal or external stakeholders.

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- 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?**

As no technical or regulatory issues were identified, no resources are required.

- 4. Based on the answers to the questions above, what is the staff action for this guide (Reviewed with no issues identified, Reviewed with issues identified for future consideration, Revise, or Withdraw)?**

Reviewed with no issues identified.

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

No conceptual plan and time frame is relevant, as no issues were identified during the review.

NOTE: This review was conducted in June 2018 and reflects the staff's plans as of that date. These plans are tentative and are subject to change.