

REGULATORY ANALYSIS

DRAFT REGULATORY GUIDE DG-1371

QUALITY GROUP CLASSIFICATIONS AND STANDARDS FOR WATER-, STEAM-, AND RADIOACTIVE-WASTE-CONTAINING COMPONENTS OF NUCLEAR POWER PLANTS

(Proposed Revision 6 of Regulatory Guide 1.26)

1. Statement of the Problem

The U.S. Nuclear Regulatory Commission (NRC) is considering revising RG 1.26 to provide improved guidance for alternative quality classification systems for components in light water reactor (LWR) nuclear power plants. Specifically, this updates the guidance for applicants and licensees of nuclear power plants to incorporate an appendix into RG 1.26 that provides guidance for alternative quality classification systems for components in LWR nuclear power plants, based on portions of American National Standards Institute (ANSI)/American Nuclear Society (ANS)-58.14-2011, "Safety and Pressure Integrity Classification Criteria for Light Water Reactors," And 10 CFR 50.69, "Risk-Informed Categorization and Treatment of Structures, Systems and Components for Nuclear Power Reactors." During the preparation of Revision 5 to RG 1.26, issued February 2017 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML16082A501), the NRC determined that the guidance in RG 1.26 needed to be updated to assist in the development and review of alternative quality classification systems for use in current nuclear power plants and new reactor designs. The letter dated October 17, 2016, from the NRC Advisory Committee on Reactor Safeguards (ACRS) discusses its review of proposed Revision 5 to RG 1.26 and recommendations for the next revision to RG 1.26 (ADAMS Accession No. ML16286A590). The letter dated December 13, 2016, from the NRC Executive Director for Operations discusses the planned NRC staff actions in response to the ACRS recommendations (ADAMS Accession No. ML16300A310).

In the early 1970s, the NRC staff developed a quality classification system for water- and steam-containing components important to safety for water-cooled nuclear power plants. In March 1972, the NRC staff issued Safety Guide 26, "Quality Group Classification Standards," to describe the quality classification system and provide guidance to licensees and applicants on using the quality classification system to satisfy the requirements of General Design Criterion (GDC) 1, "Quality Standards and Records," of Appendix A, "General Design Criteria for Nuclear Power Plants," to Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, "Domestic licensing of production and utilization facilities."

The quality classification system consists of four quality groups, A through D; methods for assigning components to those quality groups; and specific quality standards applied to each quality group. In September 1974, the NRC staff replaced Safety Guide 26 with RG 1.26. Over the years, the NRC issued several revisions to RG 1.26 to improve the quality classification guidance. Most recently, Revision 5 to RG 1.26 clarified the guidance (e.g., the definition of Quality Group A and the scope of the American Society of Mechanical Engineers (ASME) *Operation and Maintenance of Nuclear Power Plants* code, corrected errors (e.g., a misplaced footnote), and provided additional references to related classification systems such as 10 CFR 50.69, "Risk-informed categorization and treatment of structures, systems, and components for nuclear power reactors," and industry and international standards that applicants or licensees may propose as an alternative means to comply with NRC requirements.

Since the publication of Revision 5, the staff reviewed the latest guidance from ANSI/ANS-58.14-2011 on safety and pressure integrity classification, as it pertains to alternative quality classification systems for components in LWR nuclear power plants, to address current and new reactor designs. This proposed Revision 6 of RG 1.26 incorporates portions of that guidance.

2. Objective

The objective of this regulatory action is to assess the need to update the guidance for applicants and licensees of nuclear power plants to incorporate appendices into RG 1.26 that provide guidance for alternative quality classification systems for components in light-water reactor nuclear power plants.

3. Alternative Approaches

The NRC staff considered the following alternative approaches:

- Do not revise RG 1.26.
- Withdraw RG 1.26.
- Revise RG 1.26 to address the current methods and procedures.

Alternative 1: Do Not Revise RG 1.26.

Under this alternative, the NRC would not revise or issue additional guidance, and it would retain the current guidance. This alternative is considered the “no-action” alternative and provides a baseline condition from which any other alternatives will be addressed. If the NRC does not take action, there would be no change in costs or benefits to the public, licensees, or the NRC. However, the “no-action” alternative would not address identified concerns with the current version of the RG. The NRC would be impacted by the need to continue to review each application on a case-by-case basis. Applicants and licensees would be burdened by the cost of addressing the outdated guidance.

Alternative 2: Withdraw RG 1.26.

Under this alternative, the NRC would withdraw this RG. This would eliminate the problems identified above with the RG. It would also eliminate the only readily available description of the methods the NRC staff considers acceptable for demonstrating compliance with GDC 1 and 10 CFR 50.55a, “Codes and standards.” Therefore, it would remove any benefits to the public, licensees, or the NRC from having the guidance. In the absence of formal guidance, applicants would be burdened with developing their own approach. NRC may need to issue Requests for Additional Information (RAI). Applicants would be impacted by the need to respond to the RAIs and NRC staff by the need to review them.

Alternative 3: Revise RG 1.26.

Under this alternative, the NRC would revise RG 1.26. This revision would incorporate the latest information, supporting guidance, and review practices to address quality classification for light-water reactor nuclear power plants. By doing so, the NRC would ensure that the regulatory guidance available in this area is current and accurately reflects the staff’s position on the classification of water-, steam-, and radioactive-waste-containing components of

nuclear power plants. Updated regulatory guidance would enhance applicants' and licensees' ability to provide the appropriate level of detail to support the NRC staff's safety finding on a licensing action. Revising this RG to approve for use portions of ANSI/ANS-58.14-2011 is consistent with the NRC policy of evaluating the latest versions of national consensus standards to determine their suitability for endorsement by RGs. This approach also will comply with the NRC's Management Directive 6.5, "NRC Participation in the Development and Use of Consensus Standards," dated December 20, 2011 (ADAMS Accession No. ML100600460). This is in accordance with the National Technology Transfer and Advancement Act of 1995 (Public Law 104-113).

The impact to the NRC would be the costs associated with preparing and issuing the RG revision. The impact to the public would be the voluntary costs associated with reviewing and providing comments to the NRC during the public comment period. The value to NRC staff and its applicants would be the benefits associated with enhanced efficiency and effectiveness in using a common guidance document as the technical basis for license applications and other interactions between the NRC and its regulated entities.

Conclusion

Based on this regulatory analysis, the NRC staff concludes that a revision of RG 1.26 is warranted. The action will enhance the assurance of reactor safety by ensuring that appropriate guidance is available for applicants and licensees. It could also lead to cost savings for the industry, especially with regard to support for new, near-term reactor licensing activities. Revising this RG to approve for use portions of ANSI/ANS-58.14-2011 is consistent with the NRC policy of evaluating the latest versions of national consensus standards to determine their suitability for endorsement by RGs. This approach also will comply with the NRC's Management Directive 6.5, "NRC Participation in the Development and Use of Consensus Standards," dated December 20, 2011 (ADAMS Accession No. ML100600460). This is in accordance with the National Technology Transfer and Advancement Act of 1995 (Public Law 104-113).