



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
ADVISORY COMMITTEE ON REACTOR SAFEGUARDS  
WASHINGTON, DC 20555 - 0001**

October 17, 2016

Mr. Victor M. McCree  
Executive Director for Operations  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555-0001

**SUBJECT: REVIEW OF RG 1.26, REVISION 5, "QUALITY GROUP CLASSIFICATIONS AND STANDARDS FOR WATER-, STEAM-, AND RADIOACTIVE-WASTE-CONTAINING COMPONENTS OF NUCLEAR POWER PLANTS"**

Dear Mr. McCree

During the 637<sup>th</sup> meeting of the Advisory Committee on Reactor Safeguards, October 6-7, 2016, we completed our review of Regulatory Guide (RG) 1.26, Revision 5, "Quality Group Classifications and Standards for Water-, Steam-, and Radioactive-Waste-Containing Components of Nuclear Power Plants." Our Subcommittee on Plant Operations and Fire Protection also reviewed this matter on August 16, 2016. During these reviews, we benefited from discussions with the NRC staff. We also had the benefit of the documents referenced.

### **RECOMMENDATIONS**

1. Revision 5 of RG 1.26 should be issued.
2. The next revision of RG 1.26 should be broadened to include a set of basic principles for assignment of components to each quality group.

### **BACKGROUND**

In the early 1970s, the NRC staff developed a classification system to provide licensees guidance for satisfying General Design Criteria 1. RG 1.26 identifies four quality groups (A through D), provides methods for assigning components to those quality groups, and specifies quality standards that are to be applied to each quality group. Proposed Revision 5 contains no new technical requirements. It clarifies content, corrects errors, and provides 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 to industry and international standards that may be proposed by applicants or licensees as an alternative means to comply with NRC requirements.

Users of RG 1.26 are able to assign system components to the quality group classification appropriate for the component based on the system's functional performance requirements. The quality group classification identifies minimum acceptable codes and standards that may be used for the component's design. Adherence to the quality group classification system in RG 1.26 enables designers, licensees, and staff to be aligned on assignment of components with respect to codes and standards for design, licensing, procurement, construction, inspection, modification, and operation.

## **DISCUSSION**

There have been significant changes in the nuclear industry since the original version of RG 1.26 was issued in 1972. Among the most significant changes have been the certification and licensing of new reactors that utilize passive safety features, and the introduction of small modular reactor designs. Future advanced reactor designs may implement other new safety concepts.

Revision 5 of RG 1.26 provides a prescriptive structure for assigning quality group classifications. The guidance contains additional clarifications of the applicability of Group B and Group C for specific types of systems and components that do not fully fit that structure. The guide should be broadened to include a set of basic principles for assignment of components to each quality group. Such guidance would enhance consistency in the application of the appropriate codes and standards, regardless of the reactor type or the technical approach that is used to achieve each safety function.

Contemporary guidance for classification of structures, systems, and components (SSCs) also accounts for risk significance, in addition to the traditional licensing notions of "safety-related" and "non-safety-related" equipment. For example, the classification framework in 10 CFR 50.69 and RG 1.201 describes four risk-informed safety classes. The proposed Revision 5 to RG 1.26 acknowledges that 10 CFR 50.69 provides an alternative process for categorizing SSCs. The guidance does not elaborate on how each quality group applies to the SSCs in each risk-informed safety class. A common set of classification principles would enable consistent application of regulatory intent for licensees who adopt the 10 CFR 50.69 framework and staff reviewers of those applications.

Risk information is also used to support two categories of SSCs for design certifications and combined license applications that are developed under 10 CFR Part 52 and RG 1.206. Section 17.4 of the Standard Review Plan (SRP) describes how risk information is used to identify SSCs for inclusion in the design reliability assurance program. Section 19.3 of the SRP describes the criteria for selection of SSCs in passive plant designs that are subject to enhanced regulatory treatment of non-safety system requirements. Experience from some design certification and combined license reviews has shown that applicants have assigned different quality attributes to functionally similar SSCs, depending on their individual interpretation of the guidance. The proposed revision to RG 1.26 does not discuss these SSC categories for new plants or how the quality group classifications should apply to those SSCs.

The quality group classification structure presented in the proposed Revision 5 maintains established regulatory expectations for operating reactors. The next revision of RG 1.26 should be broadened to include a set of basic principles for assignment of components to each quality group for new reactor designs and for systems and components that are categorized according to risk significance.

We appreciate the staff's actions to update RG 1.26. Revision 5 of this Regulatory Guide should be issued.

Sincerely,

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Dennis C. Bley  
Chairman

## REFERENCES

1. U.S. Nuclear Regulatory Commission, Regulatory Guide 1.26, "Quality Group Classifications and Standards for Water-, Steam-, and Radioactive-Waste-Containing Components of Nuclear Power Plants," Revision 5, April, 2016 (ML16082A501).
2. U.S. Nuclear Regulatory Commission, Safety Guide 26, "Quality Group Classifications and Standards," March 23, 1972 (ML13038A093).
3. U.S. Nuclear Regulatory Commission, Regulatory Guide 1.201, "Guidelines for Categorizing Structures, Systems, and Components in Nuclear Power Plants According to their Safety Significance," Revision 1, May 2006 (ML061090627).
4. U.S. Nuclear Regulatory Commission, Regulatory Guide 1.206, "Combined License Applications for Nuclear Power Plants," June 2007 (ML070630042).
5. U.S. Nuclear Regulatory Commission, NUREG-0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants," Section 17.4, "Reliability Assurance Program," Revision 1, May 2014 (ML13296A435).
6. U.S. Nuclear Regulatory Commission, NUREG-0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants," Section 19.3, "Regulatory Treatment of Non-Safety Systems for Passive Advanced Light Water Reactors," Revision 0, June 2014 (ML14035A149).

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