

REGULATORY ANALYSIS

DRAFT REGULATORY GUIDE DG-1312 Nonmetallic Thermal Insulation for Austenitic Stainless Steel (Proposed Revision 1 of Regulatory Guide 1.36 dated February 1973)

1. Statement of the Problem

The U.S. Nuclear Regulatory Commission (NRC) published the initial version of Regulatory Guide (RG) 1.36 in February 1973 to approve for use, with certain NRC clarifications, the requirements of American Society for Testing and Materials (ASTM) C795, "Standard Specification for Thermal Insulation for Use in Contact with Austenitic Stainless Steel," including, a Preproduction Corrosion Test in accordance with ASTM C692, "Test Method for Evaluating the Influence of Thermal Insulation on External Stress Corrosion Cracking Tendency of Austenitic Stainless Steel," and a chemical analysis acceptance test for each lot of material in accordance with ASTM C871, "Test Method for Chemical Analysis of Thermal Insulation Materials for Leachable Chloride, Fluoride, Silicate and Sodium Ions." ASTM C795 was developed to provide guidance to assure that nonmetallic thermal insulation will not contribute to stress corrosion cracking of stainless steels. Recognizing that the underlying standards have been revised or updated in the ensuing years, the NRC staff believes that RG 1.36 should be revised to address the updated standards in support of new reactor license applications, design certifications, and applications for license amendments.

2. Objective

The objective of this regulatory action is to update NRC guidance and provide applicants with an acceptable method for demonstrating compliance with General Design Criterion 1, "Quality Standards and Records," of Appendix A to 10 CFR Part 50, "General Design Criteria for Nuclear Power Plants," which requires that structures, systems, and components important to safety be designed, fabricated, erected, and tested to quality standards commensurate with the importance of the safety function to be performed

Revising this regulatory guide to approve for use portions of a voluntary consensus standard is consistent with the NRC policy of evaluating the latest versions of national consensus standards to determine their suitability for endorsement by regulatory guides. This approach also will comply with the NRC's Management Directive (MD) 6.5, "NRC Participation in the Development and Use of Consensus Standards" (ML100600460). This is in accordance with Public Law 104-113, "National Technology Transfer and Advancement Act of 1995," and implementing guidance in OMB Circular A-119 (1998).

3. Alternative Approaches

The NRC staff considered the following alternative approaches:

1. Do not revise Regulatory Guide 1.36
2. Withdraw Regulatory Guide 1.36
3. Revise Regulatory Guide 1.36 to address the current methods and procedures.

Alternative 1: Do Not Revise Regulatory Guide 1.36

Under this alternative, the NRC would not issue additional guidance, and the current guidance would be retained. Although this alternative would be less costly than the proposed alternative for the NRC in the short term, it may increase the NRC's costs in the long term, and will likely increase the costs of future applicants and licensees. Applicants and licensees would be preparing applications or revising their procedures and activities based upon outdated and inaccurate information on the staff's current position on acceptable means of addressing the integrity of reactor coolant pressure boundary components made of austenitic stainless steel in contact with non-metallic insulation. Moreover, the staff's current position on these matters would remain undocumented. Applicants and licensees would be developing their applications and programs based upon an inaccurate understanding of the staff's current position. The staff, applicants and licensees would likely engage in an inefficient approach to addressing the issue of reactor coolant pressure boundary integrity with respect to the matters addressed in this regulatory guide.

Alternative 2: Withdraw Regulatory Guide 1.36

Under this alternative the NRC would withdraw this regulatory guide. This would eliminate the problems identified above regarding the regulatory guide. It would also eliminate the only readily available description of the methods the NRC staff considers acceptable for demonstrating compliance with 10 CFR 50. Although this alternative would be less costly than the proposed alternative for the NRC in the short term, it may increase both the NRC's costs in the long term, and costs of future applicants and licensees, inasmuch as the staff's current position on acceptable means of addressing the integrity of reactor coolant pressure boundary components made of austenitic stainless steel in contact with non-metallic insulation would remain undocumented. In the absence of such documentation, the staff, applicants and licensees would likely engage in an inefficient approach to addressing the issue of reactor coolant pressure boundary integrity with respect to the matters addressed in this regulatory guide.

Alternative 3: Revise Regulatory Guide 1.36

Under this alternative, the NRC would revise Regulatory Guide 1.36. This revision would approve for use the latest guidance from the ASTM. It would increase the consistency between regulatory positions and other supporting guidance and review practices. By doing so, the NRC would ensure that the RG guidance available in this area is current, and accurately reflects the current staff position.

The impact to the NRC would be the costs associated with preparing and issuing the regulatory guide revision. The impact to the public would be the voluntary costs associated with reviewing and providing comments to 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 revision of RG 1.36 is warranted. The action will enhance the licensing process for new and existing nuclear power plants. It could also lead to cost savings for the industry, especially with regard to standard plant design certifications and combined licenses.