

REGULATORY ANALYSIS

SERVICE LEVEL I, II, III AND IN-SCOPE LICENSE RENEWAL PROTECTIVE COATINGS APPLIED TO NUCLEAR POWER PLANTS (Proposed Revision 3 of Regulatory Guide 1.54)

1. Statement of the Problem

The current version of Regulatory Guide (RG) 1.54 was issued in October 2010. The NRC staff (staff) believes that there are two problems with the current version of RG 1.54.

First, the current RG approves the use of multiple American Society for Testing and Materials (ASTM) International standards, issued between 2004 and 2010, addressing protective coatings at nuclear power plants (NPPs). These ASTM standards have been replaced by newer ASTM international standards that describe the current industry practices and can provide applicants and licensees with more up-to-date guidance. The primary standard which is the subject of this RG is ASTM International Standard D 5144-08.

Second, the current RG provides guidance with respect to NPP protective coating for the period covered by the initial operating license, and does not address aging management of protective coatings in license renewal under 10 CFR Part 54, "Requirements for Renewal of Operating Licenses for Nuclear Power Plants".

The purpose of this regulatory analysis to determine if the most cost-beneficial method to update the guidance in RG 1.54 would be to issue a revision of RG 1.54 to endorse the updated ASTM standards and provide guidance for plant license renewals, or if there are other alternatives that are more cost-beneficial or should be selected for other qualitative considerations.

2. Objective

The objective of this regulatory action is to provide NRC staff regulatory guidance on the acceptability of updated ASTM standards relevant to NPP protective coatings. Additionally, the proposed revision to this RG will provide the NRC position on protective coatings to meet the requirements for plant structures, systems, and components within the scope of license renewal under 10 CFR Part 54.

3. Alternative Approaches

The NRC staff considered the following alternative approaches:

1. Do not revise RG 1.54.
2. Revise RG 1.54 to address updated consensus standards.

Alternative 1: Do Not Revise Regulatory Guide 1.54

Under this alternative, the NRC would not revise this guidance, and the original version of this RG would continue to be the current guidance. This alternative is considered the baseline or "no-action" alternative against which the value and impact considerations for other alternatives are compared. However, this alternative would not update the NRC's guidance to reflect the current ASTM standards.

Alternative 2: Revise Regulatory Guide 1.54

Under this alternative, the NRC would revise RG 1.54 to: (1) approve for use the updated ASTM standards for protective coatings which the staff has reviewed and found acceptable; and (2) expand the scope of the guidance to address aging management of protective coatings for license renewal. By doing so, the NRC would ensure that the RG guidance available in this area is current, and accurately reflects the staff's position. There are at least two benefits of this action. First, the revised RG would facilitate the use of updated ASTM international standards for the selection, qualification, application, and maintenance of protective coatings in NPPs without unnecessary staff review. Second, the revised RG would facilitate license renewal applicant's development of license renewal applications with respect to protective coatings, and provide for a more efficient staff review of protective coating programs during a license renewal application.

The cost to the NRC would be the one-time cost of issuing the revised RG (which is expected to be relatively small), and applicants would incur little or no cost. 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.

Given the clear benefits of this action and the lack of costs imposed on applicants or current licensees, the staff determined that developing a detailed quantitative evaluation of costs and benefits would not be warranted.

Conclusion

Based on this regulatory analysis, the NRC staff concludes that revision of RG 1.54 is warranted. The action will provide guidance on: (1) the acceptability for use of the latest ASTM standards for the selection, qualification, application, and maintenance of protective coatings in NPPs, and (2) acceptable aging management of protective coatings during the extended period of operation under license renewal.