October 19, 2015

MEMORANDUM TO: Brian E. Thomas, Director
Division of Engineering
Office of Nuclear Regulatory Research

FROM: John W. Lubinski, Director ***/RA/***
Division of Engineering
Office of Nuclear Reactor Regulation

SUBJECT: RESULTS OF PERIODIC REVIEW OF REGULATORY GUIDE 1.54

This memorandum documents the US Nuclear Regulatory Commission (NRC) periodic review of regulatory guide (RG) 1.54, "Service Level I, II, and III Protective Coatings Applied to Nuclear Power Plants," published in October 2010. The RG describes an acceptable method for complying with NRC quality assurance requirements for protective coating applied to ferritic steels, stainless steel, zinc-coated (galvanized) steel, concrete, or masonry surfaces of water-cooled nuclear power plants. As discussed in Management Directive 6.6, "Regulatory Guides," the NRC staff reviews RGs approximately every five years to ensure that the RGs continue to provide useful guidance. Documentation of the Office of Nuclear Reactor Regulation (NRR) staff review is enclosed.

Based on the results of the periodic review, the NRR staff concludes that a revision to RG 1.54 Revision 2 is warranted. The revision will include updating the endorsed consensus standards referenced in the RG as to be consistent with the current revisions. In addition, new consensus standards will be included in the revision to provide guidance on alternative coating evaluation methods and testing techniques not found in the RG. The revision may also include technical discussion by the staff regarding information obtained from reviewing licensing actions and operating experience from recent coating inspections and evaluations. The staff anticipates that a draft revision to RG 1.54, Rev 2, can be developed and completed by the end of the fourth quarter of calendar year 2016.

Enclosure:
As stated

CONTACT: Aloysius Obodoako, NRR/DE/ESGB
301-415-2889

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NAME	AObodoako	LPerkins	GKulesa	JLubinski
DATE	10/15/15	10/19/15	10/16/15	10/19/15

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Regulatory Guide Periodic Review

Regulatory Guide Number:	**1.54**
Revision Number:	**2**
Title:	**Service Level I, II, and III Protective Coatings Applied to Nuclear Power Plants**
Office/Division/Branch:	**NRR/DE/ESGB**
Technical Lead:	**Aloysius Obodoako**
Staff Action Decided:	**Revise**

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

Regulatory Guide 1.54, Revision 2 (Rev. 2), "Service Level I, II, and III Protective Coatings Applied to Nuclear Power Plants," issued in October 2010, describes an acceptable method for complying with the U.S. Nuclear Regulatory Commission (NRC) quality assurance requirements for protective coating applied to ferritic steels, stainless steel, zinc-coated (galvanized) steel, concrete, or masonry surfaces of water-cooled nuclear power plants (NPPs). The staff has identified several areas in the RG that warrant a revision. These are: develop and provide guidance on coating applications, testing techniques, and methods to evaluate certain parameters of coating systems (e.g., thermal conductivity, coating discontinuity); update references; and add NRC guidance on protective coating used outside of containment, especially for NPPs entering the period of extended operation. The staff recommends the changes based on recent operating experience and agency promulgated guidance regarding protective coating applied outside of NPP containments.

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?

For operating reactors, the staff anticipates approximately one to five licensing activities per year (e.g., license renewal submittals, extended power uprates) involve the use of RG 1.54, Rev 2. For new reactors, the staff anticipates to be reviewing only one to two applications in the next several years. There will be minimal impact if the guide is not updated because adequate guidance exists for licensee's to develop or enhance coating programs and conduct design basis accident testing to qualify coating systems.

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?

The NRC staff requires approximately less than one FTE to complete the documentation of the operating experience regarding coating application, testing, and evaluation and update of the references to be consistent with their current revisions. No contractor support is anticipated.

ENCLOSURE

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)?

Revise

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

The revision will include updating the endorsed consensus standards referenced in the RG as to be consistent with the current revisions. In addition, new consensus standards will be included in the revision to provide guidance on alternative coating evaluation methods and testing techniques not found in the RG. The revision may also include technical discussion by the staff regarding information obtained from reviewing licensing actions and operating experience from recent coating inspections and evaluations. The staff anticipates that a draft revision to RG 1.54, Rev 2, can be developed and completed by the end of the fourth quarter of calendar year 2016.

NOTE: This review was conducted in October 2015 and reflects the staff's plans as of that date. These plans are tentative and are subject to change.