

REGULATORY ANALYSIS

DRAFT REGULATORY GUIDE DG-1356 GUIDANCE FOR IMPLEMENTATION OF 10 CFR 50.59 “CHANGES, TESTS, AND EXPERIMENTS”

(Proposed Revision 2 of Regulatory Guide 1.187)

1. Statement of the Problem

The U.S. Nuclear Regulatory Commission (NRC) is considering revising Regulatory Guide 1.187, “Guidance for Implementation of 10 CFR 50.59 ‘Changes, Tests, and Experiments’” to endorse, with exceptions, industry guidance to comply with the requirements of 10 CFR 50.59 when performing a digital instrumentation and control modification.

Specifically, NRC inspections of documentation for digital instrumentation and control (I&C) plant modifications that some licensees have prepared using guidance in NEI 01-01, “Electric Power Research Institute (EPRI) TR-102348, Revision 1, ‘Guideline on Licensing Digital Upgrades’” (ADAMS Accession No. ML020860169), identified inconsistencies in the performance and documentation of some licensee’s engineering evaluations. Additionally, in response to Staff Requirements Memorandum (SRM)-SECY-16-0070 “Staff Requirements-SECY-16-0070-Integrated Strategy to Modernize the Nuclear Regulatory Commission’s Digital Instrumentation and Control Regulatory Infrastructure” (ML16299A157), the NRC staff has engaged the public, NEI, and industry representatives to improve the guidance for applying 10 CFR 50.59 to digital I&C-related design modifications as part of a broader effort to modernize the NRC’s regulatory infrastructure for I&C. This proposed revision to RG 1.187 will improve 10 CFR 50.59 guidance for digital I&C-related design modifications.

The objectives of 10 CFR 50.59 are to ensure that licensees evaluate proposed changes to their facilities for their effects on the licensing basis of the plant, as described in their updated final safety analysis reports, and obtain prior NRC approval for changes that meet specified criteria as having a potential impact upon the basis for issuance of the operating license. This draft guide proposes to endorse, with exceptions, the principles in Nuclear Energy Institute (NEI) 96-07, Appendix D, “Supplemental Guidance for Application of 10 CFR 50.59 to Digital Modifications,” which describes approaches to address challenges concerning digital technology implementation under 10 CFR 50.59.

2. Objective

The objective of this regulatory action is to update NRC guidance and provide licensees with an approach to demonstrate compliance with the 10 CFR 50.59 requirements for digital instrumentation and control modifications.

3. Alternative Approaches

The NRC staff considered the following alternative approaches:

1. Do not revise Regulatory Guide 1.187, Revision 1
2. Withdraw RG 1.187, Revision 1
3. Revise Regulatory Guide 1.187, Revision 1

Alternative 1: Do Not Revise Regulatory Guide 1.187

Under this alternative, the NRC would not revise or issue additional guidance, and the current guidance would be retained. By letter dated November 5, 2013 (ADAMS Accession No. ML13298A787), the NRC staff indicated that the current industry guidance for 10 CFR 50.59 screening and evaluation of digital I&C systems was inadequate, and contributed to several licensees having improperly performed 10 CFR 50.59 evaluations for modifications of I&C systems using digital technologies. If NRC does not take action, NEI 96-07, Appendix D would not be endorsed by the NRC and the industry would be left with potential regulatory uncertainty when conducting digital I&C modifications.

Alternative 2: Revise Regulatory Guide 1.187

Under this alternative, the NRC would withdraw this RG. Withdrawal of the guide would eliminate the important guidance already provided to industry regarding the implementation of 10 CFR 50.59, which allows licensees to make changes to their facilities and procedures as describe in the FSAR, without prior NRC approval. It would also eliminate the only readily-available description of the methods the NRC considers acceptable for demonstrating compliance with 10 CFR 50.59.

Alternative 3: Revise Regulatory Guide 1.187

Under this alternative, the NRC would revise Regulatory Guide 1.187. This revision would endorse, with exception and clarifications, NEI 96-07, Appendix D as an acceptable approach for screening criteria when conducting digital I&C modifications. 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 licensees would be the benefits associated with enhanced efficiency and effectiveness in using a common guidance document as the technical basis for implementing 10 CFR 50.59 for digital I&C modifications. It would also reduce current regulatory uncertainty in conducting digital I&C modifications and result in a state in which the nuclear power industry can perform digital upgrades under the 10 CFR 50.59 licensing process.

4. Conclusion

Based on this regulatory analysis, the NRC staff concludes that revision of Regulatory Guide 1.187 is warranted. The action will enhance reactor safety by giving guidance for digital I&C modifications. It could also lead to cost savings for the industry, especially with regard to the use of digital equipment, while improving regulatory predictability.