

REGULATORY ANALYSIS

REGULATORY GUIDE 1.52

DESIGN, INSPECTION, AND TESTING CRITERIA FOR AIR FILTRATION AND ADSORPTION UNITS OF POST-ACCIDENT ENGINEERED-SAFETY-FEATURE ATMOSPHERE CLEANUP SYSTEMS IN LIGHT-WATER-COOLED NUCLEAR POWER PLANTS

(Draft was issued as DG-1274, dated December 2011)

1. Statement of the Problem

The U.S. Nuclear Regulatory Commission (NRC) published Revision 3 of Regulatory Guide (RG) 1.52, "Design, Inspection, and Testing Criteria for Air Filtration and Adsorption Units of Post-Accident Engineered-Safety-Feature Atmosphere Cleanup Systems in Light-Water-Cooled Nuclear Power Plants," in June 2001 to provide licensees and applicants with agency-approved guidance for complying with Appendix A, "General Design Criteria for Nuclear Power Plants," to Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, "Domestic Licensing of Production and Utilization Facilities" with regard to the design, inspection, and testing of air filtration and iodine adsorption units of engineered-safety-feature atmosphere cleanup systems in light-water-cooled nuclear power plants. Since the publication of Revision 3, the American Society of Mechanical Engineers (ASME) Committee on Nuclear Air and Gas Treatment (CONAGT) has expanded the scope of equipment covered by ASME-AG-1, "Code on Nuclear Air and Gas Treatment." The staff had previously endorsed earlier revisions of ASME-AG-1 in RG 1.52. The revision to ASME-AG-1 consolidated select requirements from ASME-N509, "Nuclear Power Plant Air-Cleaning Units and Components," ASME-N510, "Testing of Nuclear Air-Treatment Systems," and other documents previously endorsed by the staff in RG 1.52. In addition, CONAGT has developed and published a new standard, ASME-N511-2007, "Inservice Testing of Nuclear Air Treatment, Heating Ventilation and Air Conditioning Systems." This new standard provides comprehensive test and inspection requirements and is written to complement the expanded ASME-AG-1. Revision 4 of this regulatory guidance is necessary to address these changes to the referenced industry standards.

2. Objective

The objective of this regulatory action is to provide guidance that addresses the latest industry standards on nuclear air and gas treatment for safety-related engineered-safety-feature atmosphere cleanup systems.

3. Alternative Approaches

The NRC staff considered the following alternative approaches:

1. Do not revise RG 1.52.
2. Withdraw RG 1.52.
3. Revise RG 1.52.

Alternative 1: Do Not Revise RG 1.52

Under this alternative, the NRC would not revise this RG and RG Revision 3 would be retained. If the NRC does not take action, there would be no changes in costs or benefit to the public, licensees, or

the NRC. However, this “no action” alternative would not address the latest editions of the previously endorsed codes and standards. The NRC would continue to review each application that uses newer edition codes and standards not endorsed by RG 1.52, Revision 3, on a case-by-case basis. This alternative provides a baseline condition from which any other alternatives will be assessed.

Alternative 2: Withdraw RG 1.52

Under this alternative the NRC would withdraw this RG. This would eliminate the current situation in which the industry standards referenced in RG Revision 3 are not consistent with the most current industry standards available. It would also eliminate a readily available description of methods that the NRC staff considers acceptable for demonstrating compliance with Appendix A to 10 CFR Part 50 with regard to the design, inspection, and testing of air filtration and iodine adsorption units of engineered-safety-feature atmosphere cleanup systems in light-water-cooled nuclear power plants. Although this alternative would be less costly than revising RG 1.52, it would impede the public’s accessibility to guidance information.

Alternative 3: Revise RG 1.52

Under this alternative, the NRC would revise RG 1.52, taking into consideration the newer codes and standards.

One benefit of this action is that it would enhance the reviews of new reactor applications that reference newer versions of industry codes and standards from those endorsed by RG 1.52, Revision 3. Staff reviewers would not need to issue requests for additional information to reconcile submitted design information to the current guidance.

The impact to the NRC would be the costs associated with preparing and issuing the revised RG. The impact to the public would be the voluntary costs associated with reviewing and providing comments to the NRC during the public comment period. The value to the 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 recommends revision of RG 1.52. The staff concludes that the proposed action will enhance the efficiency of design reviews. It could also lead to cost savings for the industry, especially with regard to applications for standard plant design certifications and combined licenses.