

REGULATORY ANALYSIS

DRAFT REGULATORY GUIDE DG-1352

Instrument Sensing Lines

(Proposed Revision 2 of Regulatory Guide 1.151, September 11, 2018)

1. Statement of the Problem

The U.S. Nuclear Regulatory Commission (NRC) is considering revising Regulatory Guide (RG) 1.151 (R2) to update references to the appropriate regulations and to incorporate the NRC's implementation of a risk-informed, performance-based approach to licensing.

The NRC published Revision 1 of Regulatory Guide 1.151, "Instrument Sensing Lines," in July 2010 to provide licensees and applicants with an approach that the NRC staff considers acceptable for satisfying the agency's regulatory requirements with respect to designing and installing safety-related instrument sensing lines in nuclear power plants.

Revision 1 of RG 1.151 endorses, in part and with certain clarifications, the American National Standards Institute (ANSI)/International Society of Automation (ISA) standard ANSI/ISA 67.02.01-1999, "Nuclear Safety-Related Instrument-Sensing Line Piping and Tubing Standard for Use in Nuclear Power Plants." This standard provides design, physical protection, and installation recommendations for safety-related instrument sensing lines. However, ISA 67.02.01-1999 included some incorrect technical information on some of the standard's figures and NRC did not take exception to this incorrect information in Revision 1 of RG 1.151. In 2014, ISA issued a revision to the standard ANSI/ISA-67.02.01-2014 and corrected the technical information.

Revision 2 of RG 1.151 would incorporate new information identified since the NRC staff revised the guide in 2010. The information would include (1) the corrected technical information identified in the latest version of ANSI/ISA 67.02.01-2014, (2) reference to the International Organization for Standardization (ISO) standard ISO 2186-2007, "Fluid Flow in Closed Conduits—Connections for Pressure Signal Transmissions between Primary and Secondary Elements," and (3) the addition of recent operating experience described in NRC Information Notice (IN) 2013-12, "Improperly Sloped Instrument Sensing Lines," dated July 3, 2013.

2. Objective

The objective of this regulatory action is to assess the need to update NRC guidance and provide applicants with a method to demonstrate compliance with the 10 CFR Parts 50 and 52 requirements for design, physical protection, and installation of safety-related instrument sensing lines.

Revising this regulatory guide to endorse portions of a 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.

3. Alternative Approaches

The NRC staff considered the following alternative approaches:

1. Do not revise Regulatory Guide 1.151.
2. Withdraw Regulatory Guide 1.151.
3. Revise Regulatory Guide 1.151 to address the current methods and procedures.

Alternative 1: Do Not Revise Regulatory Guide 1.151

Under this alternative, the NRC would not revise the guidance, and the current guidance would be retained. This alternative is considered the “no-action” alternative and provides a baseline condition from which any other alternatives will be assessed. If NRC does not take action, there would not be any changes in costs or benefit to the public, licensees or NRC. However, the “no-action” alternative would not address identified concerns with the current version of the regulatory guide. The NRC would continue to review each application on a case-by-case basis

Alternative 2: Withdraw Regulatory Guide 1.151

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 Parts 50 and 52 with respect to safety-related instrument sensing lines. Although this alternative would be less costly than the proposed alternative, it would impede the public’s accessibility to the most current regulatory guidance.

Alternative 3: Revise Regulatory Guide 1.151

Under this alternative, the NRC would revise Regulatory Guide 1.151. This revision would incorporate the latest and the correct information in ISA 67.02.01-2014. By doing so, the NRC would ensure that the guidance available in this area is current and accurately reflects the staff’s 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 Regulatory Guide 1.151 is warranted. The action will enhance applicant's ability to prepare submittals to NRC. An updated regulatory guide will, over time, reduce the resources needed for NRC staff review of applications and the need for requests to applicants for additional information, thus reducing costs to both applicants and the NRC staff. The benefits (e.g., reduced costs) exceed the resources needed for the NRC to revise the RG in the near-term.