

Regulatory Guide Periodic Review

Regulatory Guide Number: 1.63, Revision 3

Title: Electric Penetration Assemblies in Containment Structures for Nuclear Power Plants

Office/division/branch: RES/DE/ICEEB
Technical Lead: Eric M. Lysiak

Staff Action Decided: Reviewed with issues identified for future consideration

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

Revision 3 of RG 1.63 endorses, with some exceptions and clarifications, the Institute of Electrical and Electronics Engineers (IEEE) Standard (Std.) 317-1983, "IEEE Standard for Electric Penetration Assemblies in Containment Structures for Nuclear Power Generating Stations." The IEEE issued a revision to the standard in 2013 (IEEE Std. 317-2013) that includes:

- additional references,
- new definitions,
- a new service classification for optical fibers,
- double seals for enhanced electrical penetration safety,
- more effective pressure and seal leak monitoring,
- design tests for electro-magnetic compatibility tests for both electro-magnetic interference and radio frequency interference (susceptibility testing),
- a new section for severe accident conditions,
- an enhanced Annex D – (thermal life and aging), and
- a new Annex E – Bibliography.

It should also be noted that Revision 3 of RG 1.63 endorses the 1986 version of IEEE Std. 741, "IEEE Standard Criteria for the Protection of Class 1E Power Systems and Equipment in Nuclear Power Generating Stations," (IEEE Std. 741-1986). The IEEE revised this consensus standard in 1990, 1997, and 2007. These revisions include additional references, definitions, an enhanced Annex D – (thermal life and aging), and a new Annex E – Bibliography.

The cited revisions to the endorsed IEEE consensus standards contain enhancements. However, there are no known technical or regulatory issues with this RG.

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?

Since there are no known technical or regulatory issues, there is no impact.

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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?

Updating RG 1.63 is estimated to require about 320 hours of NRC staff effort because of the multiple references needing review.

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)?

Reviewed with issues identified for future consideration.

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

The NRC staff plans to develop a draft regulatory guide to endorse the newer IEEE standard and deliver it to the Regulatory Guidance and Generic Issues Branch (RGGIB) within 18 to 24 months. The draft regulatory guide should be available for public comment within 6 to 9 months of its receipt by RGGIB.

References:

- IEEE Std 317-2013 - IEEE Standard for Electric Penetration Assemblies in Containment Structures for Nuclear Power Generating Stations
- IEEE Std 741-2007 - IEEE Standard Criteria for the Protection of Class 1E Power Systems and Equipment in Nuclear Power Generating Stations

NOTE: This review was conducted in April 2017 and reflects the staff's plans as of that date. These plans are tentative and are subject to change.