

Regulatory Guide Periodic Review

Regulatory Guide Number: 7.8, Revision 0

Title: Load Combinations for the Structural Analysis of Shipping Casks for Radioactive Material

Office/Division/Branch: NMSS/DSFM/CSTB

Technical Lead: Antonio Rigato

Recommended Staff Action: 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)?

RG 7.8 was issued in March 1989, to comply with the regulations in 10 CFR Part 71, "Packaging and Transportation of Radioactive Material." The purpose of the RG 7.8 is to describe normal conditions of transport and hypothetical accident conditions that produce thermal and mechanical loads that serve as the structural design bases for the packaging of radioactive material for transport.

Section B of the guide, on page one, states that in the contiguous United States, there is a 99.7 percent probability that any hourly temperature reading will fall within a certain temperature range. Related to this probability, the guide states that the external thermal environmental limits for which a shipping cask must be designed are 100°F (38°C) in direct sunlight and -40°F (-40°C) in shade. For the other conditions and for the hypothetical accident conditions, the guide presents a range of ambient temperatures from -20°F (-29°C) to 100°F (38°C) as a part of the initial conditions.

This information is based on a report from 1972 (M. B. Gens, "The Transportation and Handling Environment," SD-DC-72-1386, Sandia Laboratories, Albuquerque, New Mexico, September 1972.) The staff can't currently verify that the probability is still correct since the report is more than 40 years old. However, the change in this probability will not affect licensee safety, and need not be revised.

Currently there are no technical or regulatory issues with the current version of the 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?

As there are no significant issues identified there is no impact to licensing or inspection activities.

- 3. What is an estimate of the level of effort needed to address identified issues in terms of FTE and contractor resources?**

Not applicable.

- 4. Based on the answers to the questions above, what is the staff action for this RG (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.**

As discussed in Management Directive (MD) 6.6, "Regulatory Guides," the NRC staff periodically reviews RGs to ensure that these guides continue to provide useful guidance. The staff will consider any regulatory or technical changes that may require an update of the guide during its next review.

NOTE: This review was conducted in September 2016 and reflects the staff's plans as of that date. These plans are tentative and subject to change.