Nuclear Criticality Safety Standards for Nuclear Materials Outside of Reactor Cores DG-3053 (Draft Reg Guide 3.71, Rev. 3)

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CUMULATIVE EFFECTS OF REGULATION

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Overview

- Background and Motivation for revision to RG-3.71

- Overview of changes to RG-3.71

- Process for public involvement

Background and Motivation

- Endorsement of several ANS-8 Series standards on NCS for use in NRC licensing (government policy on use of consensus standards)

- RG-3.71 issued in 1998 to consolidate and replace several earlier RGs on individual standards (RG-3.1, 3.4, 3.43, etc.)

- Endorsed in whole where possible, with exception where needed to meet NRC regulation or policy (e.g., 10 CFR 70.24)

- Standards continually being revised/developed in the industry; RG-3.71 thus revised in 2005 and 2010

- NUREG-1520 revised in 2015 (Rev. 2) to remove specific dates of standards and reference "most recent revision…endorsed by NRC," making RG-3.71 a *living document*

Background and Motivation

- Use in NUREG-1520, Rev. 2 (Section 5.4.3.1.1):
  - Acceptance criterion is that licensees should commit to follow standards which are applicable to their activities, *subject to limitations in RG-3.71*
  - Compliance with a standard is not required; licensees may justify alternative approaches to meeting regulations
    - Commitment to a standard *as endorsed in RG-3.71* is an acceptable way to meet the regulations, means meeting requirements ("shall"s) of a standard
    - Commitment to recommendations ("should"s) of a standard not needed to demonstrate compliance, but encouraged as representing industry "best practices"
    - Alternative versions, standards, and approaches may be acceptable *with appropriate justification* (most recent endorsed version preferred)
  - License applications should be clear as to what standard provisions are being committed to
  - Commitment to a standard is not a substitute for detailed analysis and may not satisfy all acceptance criteria in SRP Chapter 5

Changes in Revision 3

- Significantly reformatted to standard format develop by RES
- Expanded scope to include fuel cycle transportation and storage (10 CFR Parts 71 and 72)
- *May* also be applicable to out-of-core activities in other regulated activities (has not been reviewed against other parts of 10 CFR)
- Added endorsement of ANS-8.27 on burnup credit
- Added endorsement of ISO standard for first time (ISO 7753)
- Streamlined and parallelized guidance for each standard, especially distinction between exceptions and clarifications:
  - Exception: where a provision of a standard *conflicts with* NRC regulations (e.g., inconsistency of ANS-8.3 with 10 CFR 70.24)
  - Clarification: more detailed explanation of *how* and *when* a standard provision is acceptable for meeting NRC regulations (may be more restrictive or permissive)

Changes in Revision 3

- Other ISO and IAEA guidance and standards listed as references, *but have not been evaluated for endorsement* in this revision
- NRC staff technical positions have not significantly changed
- Existing positions on burnup credit added in discussing ANS-8.27
  - Restrictions on use of a combined validation approach (depletion & reactivity)
  - Assignment of fuel burnup must be based on physical measurements
- Exceptions to ISO 7753 are the same as for ANS-8.3
- Recently discovered error in plutonium nitrate concentration added as exception to ANS-8.1
- Clarifications for ANS-8.10 (NRC less restrictive than 8.10)
- Clarification for ANS-8.23 for accident dosimeters re: ANSI N13.1
- Exception to ANS-8.24 re: positive bias has been relaxed; now a clarification

Public Comment Period

- DG-3053 issued for public comment on August 23, 2017

- Issued as 82 FR 40173 on August 24, 2017

- Comment period ends October 23, 2017

- All comments received will be collected, evaluated, and responded to once the comment period ends

- DG-3053 will be revised and issued as Rev. 3 of RG-3.71 following resolution of comments