

July 21, 2011

Dr. Said Abdel-Khalik, Chairman
Advisory Committee on Reactor Safeguards
U.S. Nuclear Regulatory Commission
Washington, DC 20555

SUBJECT: DRAFT REGULATORY GUIDES DG-1261, DG-1262, AND DG-1263

Dear Dr. Abdel-Khalik:

I am responding to your letter dated June 22, 2011 (Ref. 1), about the efforts of the staff of the U.S. Nuclear Regulatory Commission (NRC) to prepare three draft regulatory guides (DG) for public comment: DG-1261, "Conducting Periodic Testing for Breakaway Oxidation Behavior;" DG-1262, "Testing for Postquench Ductility;" and DG-1263, "Establishing Analytical Limits for Zirconium-Based Alloy Cladding" (Ref. 2). The Office of Nuclear Regulatory Research developed these DGs to support the proposed rulemaking for Title 10 of the *Code of Federal Regulations* (10 CFR) 50.46, "Requirements for Emergency Core Cooling Systems for Light-Water Nuclear Power Reactors." The NRC staff appreciates the time and effort that the Advisory Committee on Reactor Safeguards (ACRS) has devoted to this important subject.

In your letter, the ACRS concludes that the NRC should issue DG-1261, DG-1262, and DG-1263 for public comment. The NRC staff agrees with this recommendation. Although all of these draft guides were made available to the public in support of the ACRS meetings, the NRC staff intends to publish them for formal public comment in 2012 in conjunction with the proposed rule. Doing so will provide the nuclear industry and the public with a better understanding of the proposed rule's implementation and acceptable methods for complying with the proposed regulations. This timing will also enable external stakeholders to comment on both the DGs and the proposed rule during the same timeframe. This is particularly important because of the performance-based nature of the 10 CFR 50.46c proposed rule.

The ACRS further recommended that the NRC not delay publication of the proposed rule because of the additional issues that have developed since the initiation of the rulemaking. The NRC staff agrees with the recommendation. The staff is developing, and plans to provide me by February 2012, a proposed rule that achieves all of the original rulemaking objectives. In this rulemaking package, the staff plans to make available the results of additional research conducted since the NRC issued Research Information Letter RIL-0801, "Technical Basis for Revision of Embrittlement Criteria in 10 CFR 50.46," dated May 30, 2008 (Ref. 3). This includes research into the mechanical behavior of the ballooned region of the fuel rod described in our meetings with ACRS on June 23 and July 13, 2011.

In your letter, the ACRS also recommended that the staff arrange for Argonne National Laboratory (ANL) to participate in the Electric Power Research Institute (EPRI) round-robin test program (Ref. 4). We have been working with the nuclear industry regarding the loss of coolant accident test procedures for some time. The staff agrees that ANL involvement in the EPRI program could provide additional information to the nuclear industry. However, the staff also believes that more regulatory value would be added by having ANL review the results of the round-robin testing than participating in it. The EPRI program does not require strict compliance with previously published ANL test procedures (upon which the DGs were based); instead, participants may deviate from the procedures based on individual laboratory capability. Because the results of the EPRI program may depend as much (if not more) on test procedures as on the cladding material used, the staff has assigned a lower priority to participating in this activity than other currently-ongoing research activities at ANL.

In conclusion, we do not believe that participation in the EPRI program is necessary to demonstrate the reliability of the draft test procedures. If the results of the industry round-robin testing differ significantly from the results previously generated and reported by ANL, the NRC staff would reconsider its prioritization of the work.

The NRC staff welcomes ACRS technical advice and feedback on the DGs.

Sincerely,

/RA Michael F. Weber for/

R. W. Borchardt
Executive Director
for Operations

cc: Chairman Jaczko
Commissioner Svinicki
Commissioner Apostolakis
Commissioner Magwood
Commissioner Ostendorff
SECY

References

1. S. Abdel-Khalik (ACRS), memorandum to R. W. Borchardt (NRC), "Draft Regulatory Guides DG-1261, DG-1262, and DG-1263," June 22, 2011. (Agencywide Documents Access and Management System (ADAMS) Accession No. ML11164A048)
2. DG-1261, "Conducting Periodic Testing for Breakaway Oxidation Behavior," DG-1262, "Testing for Postquench Ductility," and DG-1263, "Establishing Analytical Limits for Zirconium-Based Alloy Cladding," April 20, 2011. (ADAMS Accession No. ML111100271)
3. B. W. Sheron (Office of Nuclear Regulatory Research), memorandum to E. J. Leeds (Office of Nuclear Reactor Regulation) and M. R. Johnson (Office of New Reactors), "Research Information Letter 0801, 'Technical Basis for Revision of Embrittlement Criteria in 10 CFR 50.46,'" May 30, 2008. (ADAMS Accession No. ML081350225)
4. K. Yueh (EPRI), "Industry LOCA Test Plans and Results." This presentation is available as pages 317-353 of the transcript of the ACRS Subcommittee on Materials, Metallurgy, and Reactor Fuels meeting on May 10, 2011 (ADAMS Accession No. ML111450409)

References

1. S. Abdel-Khalik (ACRS), memorandum to R. W. Borchardt (NRC), "Draft Regulatory Guides DG-1261, DG-1262, and DG-1263," June 22, 2011. (Agencywide Documents Access and Management System (ADAMS) Accession No. ML11164A048)
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3. B. W. Sheron (Office of Nuclear Regulatory Research), memorandum to E. J. Leeds (Office of Nuclear Reactor Regulation) and M. R. Johnson (Office of New Reactors), "Research Information Letter 0801, 'Technical Basis for Revision of Embrittlement Criteria in 10 CFR 50.46,'" May 30, 2008. (ADAMS Accession No. ML081350225)
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