



UNITED STATES
NUCLEAR REGULATORY COMMISSION
ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
WASHINGTON, DC 20555 - 0001

ACRSR-2184

April 14, 2006

Mr. Luis A. Reyes
Executive Director for Operations
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

SUBJECT: REVIEW OF THE 1994 ADDENDA TO THE ASME CODE FOR CLASS 1, 2,
AND 3 PIPING SYSTEMS AND THE RESOLUTION OF THE DIFFERENCES
BETWEEN THE NRC STAFF AND ASME

Dear Mr. Reyes:

During the 531st meeting of the Advisory Committee on Reactor Safeguards, April 5-7, 2006, we reviewed the resolution of the differences between the NRC staff and the American Society of Mechanical Engineers (ASME) regarding the 1994 Addenda to Section III of the ASME Boiler and Pressure Vessel Code for Class 1, 2, and 3 piping systems. During our reviews, we had the benefit of discussions with representatives of the NRC staff and ASME. We also had the benefit of the documents referenced.

RECOMMENDATION

Most of the differences between the staff and ASME are resolved. The staff proposes to address the one remaining issue related to dynamic strain aging of certain carbon steels at temperatures greater than 300 EF by placing a restriction on the endorsement of the ASME Code in 10 CFR 50.55a. This approach is practical; however, we encourage the staff to work with ASME to resolve the one remaining issue.

DISCUSSION

The NRC staff initially did not endorse the revised seismic design criteria in the 1994 Addenda to the ASME Code because of concerns with the technical basis used to establish these criteria. Since that time, the ASME has initiated changes to the Code to address the staff's concerns. These changes include eliminating the application of the seismic rules to flow-transient loads, eliminating the NB-3200 strain criteria, modifying the Class 2 and 3 Level B limits to be consistent with the Level D limits, eliminating changes specifying the methods to generate seismic loads in the evaluation of reversing dynamic loads, and adding provisions to address potential strain concentrations. The staff agrees with these changes.

The remaining unresolved issue between ASME and the staff relates to the effects of dynamic strain aging on the ultimate tensile capacity of certain carbon steels at temperatures greater

than 300 EF. The staff proposes to address this issue by placing a restriction in the 10 CFR 50.55a endorsement of the ASME Code. This approach is practical; however, we encourage the staff to work with ASME to resolve the one remaining issue.

Sincerely,

/RA/

Graham B. Wallis
Chairman

References:

1. U.S. Nuclear Regulatory Commission, "Seismic Analysis of Piping," NUREG/CR-5361, June 1998.
2. Letter to G.M. Eisenberg, Director, Nuclear Codes and Standards, ASME, from Brian W. Sheron, NRR, "ASME Code Revisions to the Design Rules for Piping Systems," May 24, 1995.
3. Presentation by John R. Fair, NRR, to the ACRS Subcommittee on Materials and Metallurgy, "Piping Seismic Design Criteria," March 25, 1999.
4. Presentation by John R. Fair, NRR, to William J. Shack, ACRS, "Status of ASME Code Piping Seismic Design Criteria," October 3, 2003.

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References:

5. U.S. Nuclear Regulatory Commission, "Seismic Analysis of Piping," NUREG/CR-5361, June 1998.
6. Letter to G.M. Eisenberg, Director, Nuclear Codes and Standards, ASME, from Brian W. Sheron, NRR, "ASME Code Revisions to the Design Rules for Piping Systems," May 24, 1995.
7. Presentation by John R. Fair, NRR, to the ACRS Subcommittee on Materials and Metallurgy, "Piping Seismic Design Criteria," March 25, 1999.
8. Presentation by John R. Fair, NRR, to William J. Shack, ACRS, "Status of ASME Code Piping Seismic Design Criteria," October 3, 2003.

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