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Rules and Directives Branch  
Office of Administration  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555-001

Subject: ASME Comments on Draft Regulatory Guide DG-1144: "Guidelines for Evaluating Fatigue Analyses Incorporating the Life Reduction of Metal Components Due to the Effects of the Light-Water Reactor Environment for New Reactors"

Reference: Chopra, O.K. "Effect of LWR Coolant Environments on the Fatigue Life of Reactor Materials," NUREG/CR-6909 (draft), ANL-06/08, U.S. Nuclear Regulatory Commission, Washington, DC, April 2006

Ladies and Gentlemen:

This letter provides ASME comments on proposed Draft Regulatory Guide DG-1144 for consideration by the U.S. Nuclear Regulatory Commission (USNRC). The nature of these comments is mostly administrative. Although ASME would welcome the opportunity to submit technical comments, the 60-day comment period is not adequate to allow the ASME consensus process to formulate and approve a technical position on the draft regulatory guide, particularly as it references the proposed technical approach outlined in draft NUREG/CR-6909. Therefore ASME requests that the USNRC consider extending the 60 day comment period to 120 days, and this would allow the ASME consensus process to provide a technical response given that the next ASME Boiler & Pressure Vessel Code meetings occur Oct. 30 – Nov. 3, 2006.

ASME anticipates that individuals and organizations that are the constituents of our ASME Nuclear Codes and Standards volunteers will submit technical comments as individuals or from their respective organizations.

ASME commends the NRC for taking an active role in addressing the issue of environmental fatigue in requirements for construction of nuclear power plant components in the following manner:

- 1) Support of various related research efforts,
- 2) Support of various efforts to establish acceptable methods for consideration of environmental fatigue, and
- 3) For establishing a position via Draft Regulatory Guide DG-1144 to establish one method that would be acceptable to the NRC to support new plant licensing.

ASME and industry efforts to address the impact of environment fatigue go back almost twenty-five years. During that course of time, the research efforts have done much to provide a good knowledge base, but the knowledge base is continually expanding. Most recently, ASME explored three possible avenues to address this issue.

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- 1) Make no changes to ASME Boiler and Pressure Vessel (B&PV) Code design rules, and treat the impact of environmental fatigue as an operating plant life issue. This approach is similar to what has occurred in the plant life renewal applications.
- 2) Adopt fatigue curves that envelope the test results in today's database. This approach has been developed into a Code Case, which is currently being reviewed by the appropriate ASME B&PV Code committees.
- 3) Utilize an environmental correction factor ( $F_{en}$ ) that is similar to the NRC proposal in the Draft Regulatory Guide DG-1144.

However, due to the complex nature of the in-service conditions that influence environmental fatigue and the inability to decide on the methodology to be used to correctly incorporate the  $F_{en}$  factor into the design calculations, which is further complicated by the continued evolution of the methodology for incorporating the  $F_{en}$  factor, it has not been possible to reach a consensus within the ASME Codes and Standards.

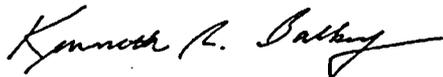
ASME will consider adopting the proposed regulatory guide approach in the format of a Code Case. This action will enable a thorough review by ASME constituents. If consensus approval is obtained, an agreement between the NRC and ASME about one acceptable method of addressing the impact of environmental fatigue would be achieved.

ASME will continue to develop other Code Cases covering alternative ways of addressing this impact. The voting process on this Code Case is underway and it is anticipated that any comments and/or objections will be resolved in a timely manner and the Code Case will be issued early in 2007. Once these Code Cases are issued, ASME requests the NRC to endorse these Code Cases in a revision of the Regulatory Guide 1.84.

In this manner, ASME plans to foster continued cooperative development of acceptable ways to deal with the impact of environmental fatigue in a timely manner. The goal will be to develop a method that can be implemented in the component design in a straightforward manner, without undue conservatism, that will provide assurance of adequate fatigue life when environmental factors are present.

Thank you for the opportunity to provide these comments. If there are any questions regarding these comments, please direct them to Mr. Kevin Ennis, ASME Director, Nuclear Codes and Standards by phone (212-591-7075) or e-mail ([ennrisk@asme.org](mailto:ennrisk@asme.org)).

Sincerely,



Kenneth R. Balkey, PE  
Vice President  
Nuclear Codes and Standards

Cc: Mr. Kevin Ennis, ASME Staff, Director, Nuclear Codes & Standards  
Mr. Richard Porco, Vice Chair, ASME Board on Nuclear Codes & Standards Operations  
Mr. Bryan Erler, Vice Chair, ASME Board on Nuclear Codes & Standards Strategic Initiatives  
Mr. Richard Barnes, ASME B&PV Subcommittee on Nuclear Power (SC III)  
Mr. Robert Jessee, Vice Chair, ASME B&PV Subcommittee on Nuclear Power (SC III)  
Mr. Peter Deubler, Chair, ASME Subcommittee III Subgroup on Design  
Mr. Guido Karcher, Chair, ASME Boiler & Pressure Vessel Standards Committee