July 25, 2006

Mr. Adrian Heymer
Director, New Plant Development
Nuclear Generating Division
Nuclear Energy Institute
1776 I Street, NW, Suite 400
Washington, D.C. 20006-3708

SUBJECT: INDUSTRY PROPOSAL ON SEISMIC CORE DAMAGE FREQUENCY TARGET VALUE

Dear Mr. Heymer:

In your letter, dated March 30, 2006, you proposed a seismic core damage frequency (SCDF) target value of 5E-6/yr for use with the performance-based approach. Since then, the U.S. Nuclear Regulatory Commission (NRC) staff has evaluated your proposal along with other SCDF target values for comparison with the American Society of Civil Engineers (ASCE) Standard 43-05, "Seismic Design Criteria for Structures, Systems, and Components in Nuclear Facilities." ASCE 43-05, for the most stringent seismic design basis category (SDB-5D), recommends using a target value of 1E-5/yr for the frequency of onset of significant inelastic deformation (FOSID).

Based on its evaluation, the NRC staff has concluded that the approach described in ASCE standard 43-05 for SDB-5D, which targets a FOSID value of 1E-5/yr, is preferable to the SCDF approach and target value proposed in your letter. The ASCE standard 43-05 is a national consensus standard and applicable portions of the standard have been thoroughly evaluated by the NRC staff during its review of the Exelon Early Site Permit application for the Clinton, IL, site. In addition, staff review of Electric Power Research Institute reports 1012044 and 1012045, "Assessment of a Performance-Based Approach for Determining Seismic Ground Motions for New Plant Sites, V1 and V2," verified that the ASCE 43-05 approach, in general, provides adequate seismic design spectra for sites in the Central and Eastern United States. The ASCE 43-05 approach also ensures that the seismic design spectrum will be equal to or greater than the 10^{-4} mean uniform hazard level ground motion spectrum. Furthermore, the staff believes that FOSID is a more appropriate metric for risk due to seismic damage and defense-in-depth in the technology-neutral framework.

Therefore, as stated at the May 11-12, 2006, public meetings with the Nuclear Energy Institute and industry representatives, the NRC staff prefers the ASCE standard 43-05 approach for determining seismic design spectra. In accordance with this decision, NRC staff are currently preparing a new regulatory guide that will describe in detail its recommendations for implementation of the performance-based approach for determining the Safe Shutdown Earthquake (SSE) ground motion, including the use of ASCE 43-05.

Review of your recent letter dated June 23, 2006, confirms that the industry proposal for use of ASCE 43-05 to determine the SSE is in agreement with NRC staff recommendations. We appreciate your continued communication on this subject. Please note that future correspondence on this issue should be addressed to Michele Evans Deputy Director for Engineering Research Applications in the Division of Fuel, Engineering and Radiological Research, Office of Nuclear Regulatory Research. Ms. Evans may be reached at (301) 415-7210.

Sincerely,

/RA/

Eugene V. Imbro, Deputy Director
Division of Engineering
Office of Nuclear Reactor Regulation

Review of your recent letter dated June 23, 2006, confirms that the industry proposal for use of ASCE 43-05 to determine the SSE is in agreement with NRC staff recommendation. We appreciate your continued communication on this subject. Please note that future correspondence on this issue should be addressed to Michele Evans Deputy Director for Engineering Research Applications in the Division of Fuel, Engineering and Radiological Research, Office of Nuclear Regulatory Research. Ms. Evans may be reached at (301) 415-7210.

Sincerely,

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Eugene V. Imbro, Deputy Director
Division of Engineering
Office of Nuclear Reactor Regulation

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