Nuclear Power Plant Seismic Design — A Review of Selected Topics

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Abstract

This paper presents a background review of the basis for the current seismic design criteria employed in the United States with particular attention given to the so-called double earthquake approach to seismic design. The paper also provides details of approaches used in other countries, namely Canada and Japan, which at least in part do not use the two earthquake concept in design.

The paper begins with a brief presentation of background material pertaining to the approach employed in the seismic design of nuclear plants in the 1960's along with comments on the development of the current procedures. The next section contains a brief discussion of the criteria contained in Appendix A of 10CFR100 which today largely governs the seismic design of nuclear power plants in the U.S. The last section discusses effective versus instrument acceleration in design and observations pertaining to other approaches that might be employed in terms of selecting and carrying out the seismic design. Also presented is a brief discussion of some of the technical factors that would necessarily have to be considered in such a case.