American Nuclear Society

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ANSI/ANS-2.29-2008 (R2016)

probabilistic seismic hazards analysis

an American National Standard

REAFFIRMED
October 11, 2016
ANSI/ANS-2.29-2008; R2016

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American National Standard
Probabilistic Seismic Hazards Analysis

Secretariat
American Nuclear Society

Prepared by the
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Working Group ANS-2.29

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American National Standard

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Foreword

(This Foreword is not a part of the American National Standard "Probabilistic Seismic Hazards Analysis," ANSI/ANS-2.29-2008.)

This standard establishes requirements for performing probabilistic seismic hazard analyses (PSHAs). It is one of a group of four standards that establish requirements for the seismic design process for nuclear facilities. Figure A shows the relationship between this standard and the other three seismic standards: American National Standards Institute/American Nuclear Society ANSI/ANS-2.26-2004, "Categorization of Nuclear Facility Structures, Systems, and Components for Seismic Design"; ANSI/ANS-2.27-2008, "Criteria for Investigations of Nuclear Facility Sites for Seismic Hazard Assessments"; and American Society of Civil Engineers/Structural Engineering Institute ASCE/SEI 43-05, "Seismic Design Criteria for Structures, Systems, and Components in Nuclear Facilities." The procedural relationship among these standards is further described in ANSI/ANS-2.26-2004. The user should consult ASCE/SEI 43-05 to see how the information produced by ANSI/ANS-2.29-2008 is used in developing seismic loads specific to a structure, system, or component (SSC).

As described in ANSI/ANS-2.26-2004 and ASCE/SEI 43-05, the seismic design process for nuclear facilities is based on the consequences of seismically initiated failure of SSCs and specified limit states and design requirements. The seismic design categories identified in ANSI/ANS-2.26-2004 and the design requirements in ASCE/SEI 43-05 aim to satisfy target performance goals defined in terms of the annual probability of exceeding specified SSC performance. Achieving

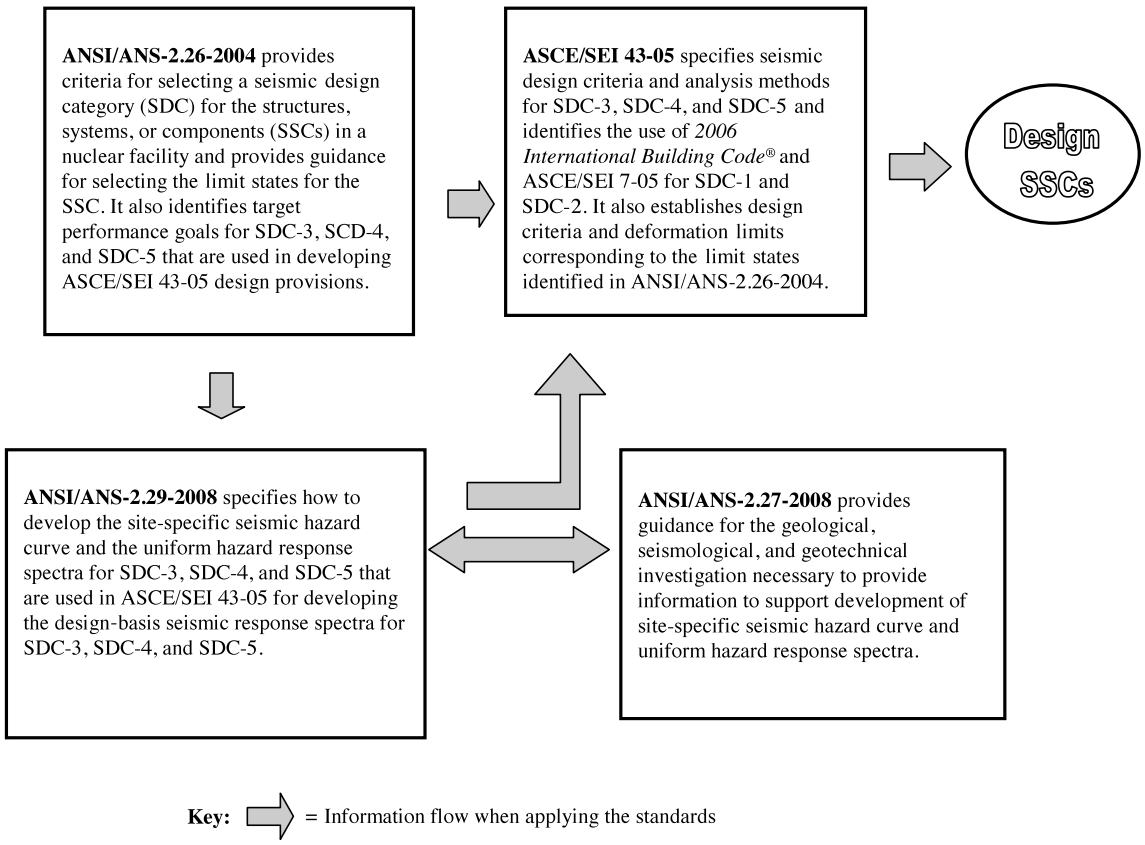

Figure A – Schematic showing the relationships of the seismic standards

a target performance goal is directly related to the probability of a seismic load. Therefore, the results of a PSHA are required as input to the seismic design process. ANSI/ANS-2.29-2008 establishes procedures for performing a PSHA needed to support selection of the seismic loads used in ASCE/SEI 43-05. The methods specified herein can also be used to support other applications, such as seismic probabilistic risk analyses.

This standard might reference documents and other standards that have been superseded or withdrawn at the time the standard is applied. A statement has been included in the reference section that provides guidance on the use of references.

The ANS-2.29 Working Group of the Standards Committee of the American Nuclear Society (ANS) had the following membership:

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