ANSI/ANS-2.27-2020

Criteria for Investigations of Nuclear Facility Sites for Seismic Hazard Assessments

An American National Standard

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American Nuclear Society
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American National Standard Criteria for Investigations of Nuclear Facility Sites for Seismic Hazard Assessments

Secretariat
American Nuclear Society

Prepared by the **American Nuclear Society Standards Committee Working Group ANS-2.27**

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American National Standard

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Foreword

(This foreword does not contain any requirements of American National Standard "Criteria for Investigations of Nuclear Facility Sites for Seismic Hazard Assessments," ANSI/ANS-2.27-2020, but is included for informational purposes.)

This standard provides requirements and recommended practices for conducting investigations and acquiring geological, geophysical, and geotechnical datasets needed for the assessment of seismic hazards at nuclear facilities. The investigations and datasets described in this standard support many aspects of seismic hazards assessment, including the characterization of local and regional seismic sources for probabilistic seismic hazard analysis and characterization of local faults and site conditions for probabilistic fault displacement hazard analysis, or, for blind or buried faults, probabilistic tectonic deformation hazard analysis. This standard also discusses site-specific investigations for foundation stability and datasets that are necessary and/or useful for site response and soil–structure interaction analyses as well as the evaluation of nontectonic, earthquake-induced ground failure hazards such as liquefaction, ground settlement, and slope failure.

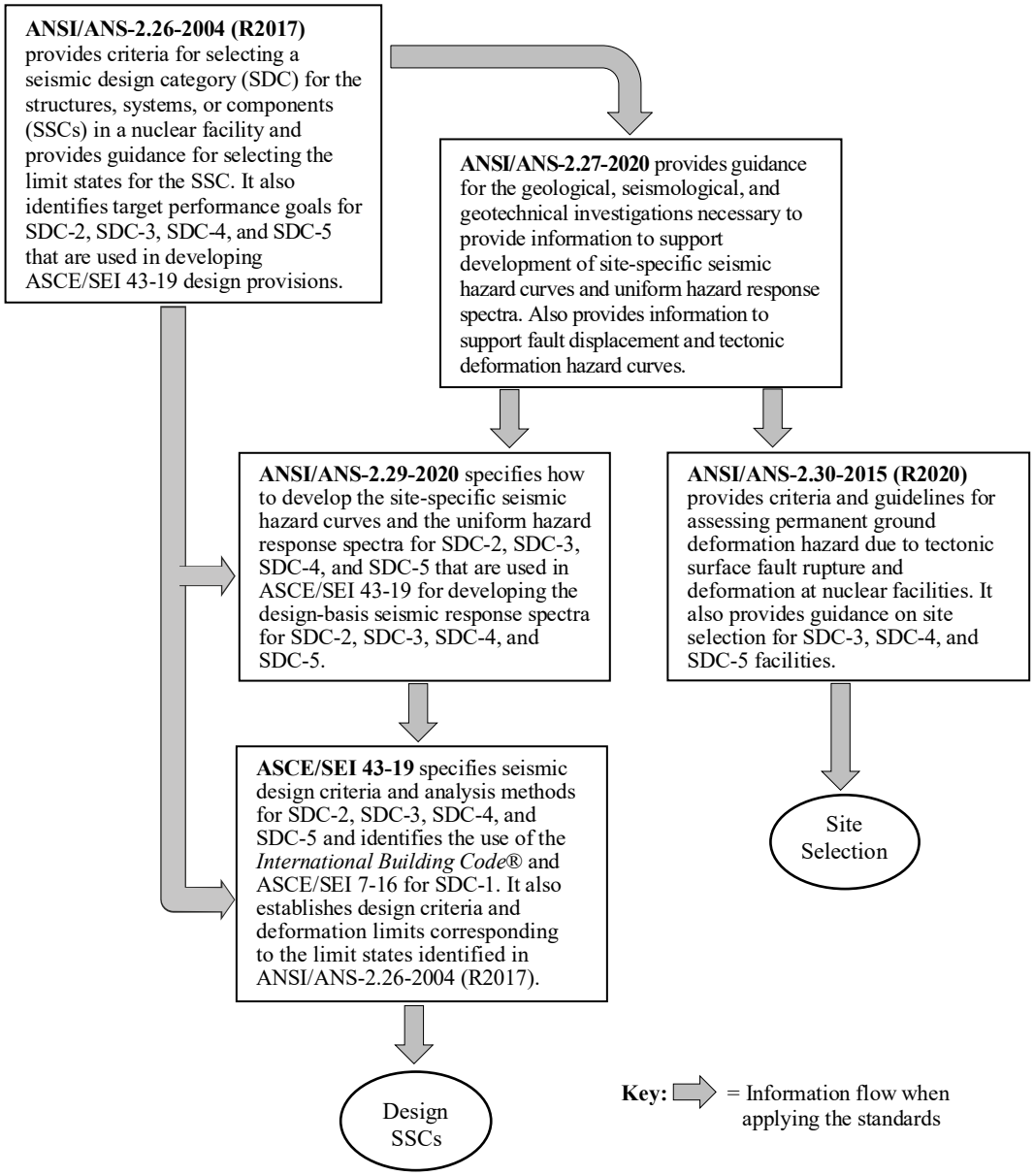

Figure A – The set of standards that operate together to inform the assessment of seismic hazards and seismic design at nuclear facilities.

This standard is one of a group of five standards that address siting and the seismic design process for nuclear facilities (Figure A). The overall objective of these standards is to achieve a risk-informed design that protects the public, the environment, and workers from potential consequences of earthquakes. The other four standards are ANSI/ANS-2.26-2004 (R2017), "Categorization of Nuclear Facility Structures, Systems, and Components for Seismic Design"; ANSI/ANS-2.29-2020, "Probabilistic Seismic Hazard Analysis"; ANSI/ANS-2.30-2015 (R2020), "Criteria for Assessing Tectonic Surface Fault Rupture and Deformation at Nuclear Facilities"; and ASCE/SEI 43-19, "Seismic Design Criteria for Structures, Systems, and Components in Nuclear Facilities."

The working group has incorporated risk-informed and/or performance-based requirements into this standard. 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 references section that provides guidance on the use of references.

This standard was prepared by the ANS-2.27 Working Group of the American Nuclear Society. The following members contributed to this standard:

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