

Updating the SSHAC Implementation Guidance in NUREG-2117

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Probabilistic seismic hazard analyses for critical facilities often rely on recommendations for the use of expert judgment developed by the Senior Seismic Hazard Analysis Committee (SSHAC), as described in NUREG/CR-6372. In 2012, NUREG-2117 was published to complement these guidelines by providing implementation guidance for SSHAC Level 3 and Level 4 studies. Since then, the SSHAC process has been used to update probabilistic seismic hazard analyses (PSHA) at all nuclear power plant sites in the United States, and has provided a framework for seismic hazard studies for U.S. Department of Energy nuclear facilities, nuclear facilities in other countries (e.g., South Africa and Spain), and major dams in Canada. These recent applications of the guidance provide a wealth of experience that demonstrates the fundamental value and importance of the SSHAC process. In addition, the SSHAC guidelines are now being contemplated by the U.S. Nuclear Regulatory Commission (NRC) and the Federal Energy Regulatory Commission (FERC) for application to flooding hazards (e.g., riverine flooding and tsunami), and other federal and municipal agencies are applying them to dam failure analyses. The wealth of recent real-world lessons learned and the potential application to nonseismic hazard analyses provide the impetus for revising the guidance in NUREG-2117, as well as adding and amplifying guidance in areas that were not given detailed attention in the existing version of NUREG-2117.

As a result, a substantial update to NUREG-2117 is undergoing development in the following four topical areas:

- (1) Criteria to determine when and how existing SSHAC studies should be updated
- (2) Guidelines for conducting SSHAC Level 1 and Level 2 studies
- (3) Detailed guidance updates for Level 3 studies
- (4) Recommendations on how to apply SSHAC principles to nonseismic hazard studies. For each topical area, a series of telephone interviews with past SSHAC participants was conducted, followed by half-day workshops with the same participant groups to discuss common themes or points of disagreement that arose from the interviews. The interviewees for each topic were selected given their previous experience in the SSHAC process, level of involvement in SSHAC workshops and subsequent reporting activities,

and comments the participants provided about the SSHAC process during the recent PSHA studies. Based on the results of these four workshops, technical bases for extensive revisions to NUREG–2117 were developed, and editing the document for a planned release in late 2016 or early 2017 is currently in process. This presentation will summarize the information and outcomes from each of the topical workshops and describe the proposed NUREG–2117 updates.

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