Probabilistic Seismic Hazard Analyses – An Industry Professional's Perspective

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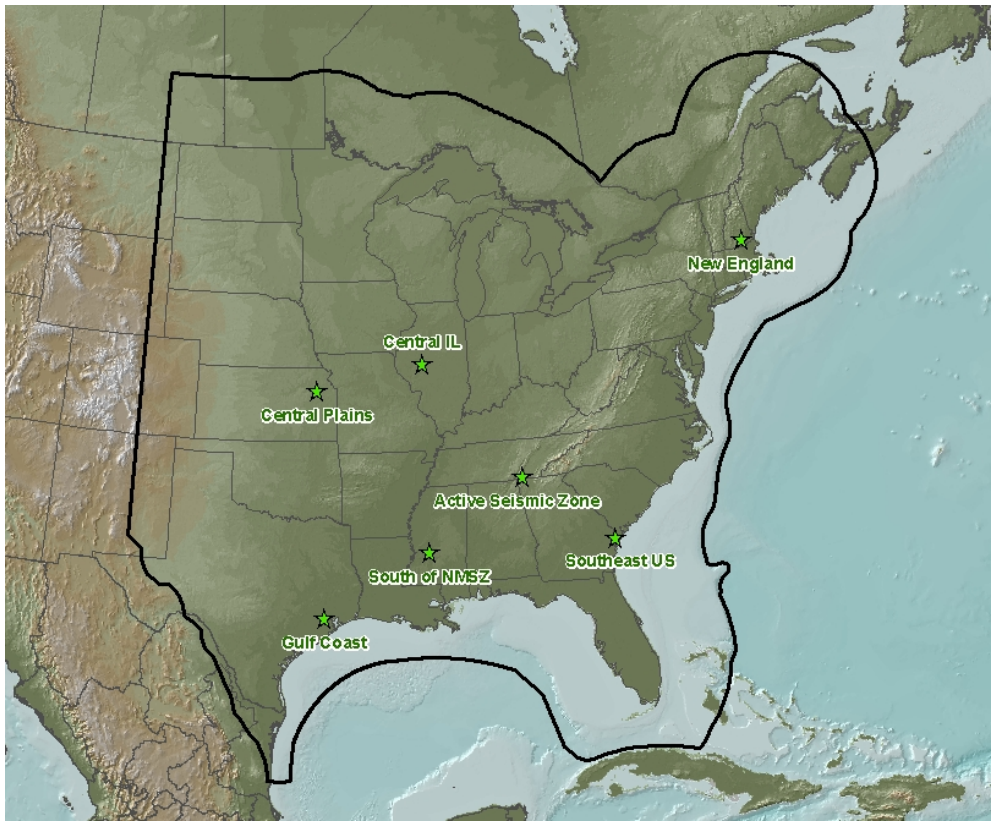
A Glacier Can Advance or Retreat! Will Inputs to PSHAs Continue To Advance?

CHALLENGES

- Respond to Seismic Fatigue from Recent Seismic Hazard Studies
- Maintain Stability from Regional Source and Attenuation Models developed since 2008
- Identify a Viable Senior Seismic Hazard Analysis Committee (SSHAC) Assessment Process
  - Cost-Effective
  - Performed and Approved in 18 Months or Less
- Maintain CEUS Source Model and Website

CEUS SSC Study Area and Test Sites



APPROACH

- Update NUREG – 2117, “Practical Implementation Guidelines for SSHAC Level 3 and 4 Hazard Studies”
- Develop Enhanced SSHAC Level 2 Study:
  - Select SSHAC Level
  - Develop Project Plan
  - Select Project Participants
  - Develop Project Database
  - Hold Workshop
  - Develop Preliminary Model (s) and Hazard Input Document (HID)
  - Perform Preliminary Hazard Calculations and Sensitivity Analyses
  - Finalize Models Using Feedback
  - Perform Final Hazard Calculations and Sensitivity Analyses
  - Develop Draft and Final Report
  - Participatory Peer Review of Entire Process

APPROACH (continued)

- Categories for CEUS SSC Model Updates
  - **TYPE 1:** Simple Data Change Correction to Fix a Parameter and Bookkeeping Changes
  - **TYPE 2:** Complex Change Involving Judgments
  - **TYPE 3:** Extensive Complex Changes that Affect the Entire CEUS Study Area

- Approve Proposed Maintenance Plan for CEUS SSC Model
  - **Identification of Model Changes:** ESP, COLA, DOE Complex Studies or Other Sources
  - **Evaluation**: Screen Based on Type of Information Change
  - **Documentation**: Type 1 (Errata Sheet) and Type 2 (SSHAC Level 2 Assessment Report)
  - **Application**: All Significant Site-Specific Updates Assembled and Retained
  - **Distribution**: Updates Approved by NRC, EPRI and DOE Posted on CEUS SSC Website

APPROACH (continued)

- Implement Maintenance Plan for CEUS SSC Website
  - Use NRC, DOE and EPRI Approved Plan Which Describes Process for Updating CEUS SSC Website (January 20, 2015)
  - Assemble and Post Approved Updates to the CEUS SSC Website

Conclusions

- **Recent Studies to Develop Source and Attenuation Models and Response to Seismic 2.1 Directives from the Fukushima Dai-Ichi Accident Have Resulted in Seismic Fatigue**
- **Guidance for SSHAC Levels is Important to Address Seismic Fatigue and to Create Viable Options to Conduct Seismic Hazard Studies**
- **An Enhanced SSHAC Level 2 Assessment Process Should Be Considered if the Advantages of a SSHAC Level 2 and Level 3 Are Desired**
- **Proposed Maintenance Plan for the CEUS SSC Model is Recommended for Approval by DOE, EPRI and the NRC**
- **Approved Maintenance Plan for the CEUS SSC Website Should be Implemented to Allow for a Systematic Assembly of New PSHA Results As It Becomes Available**

Use of the CEUS Source Model and Website Maintenance Plans Maintain Stability!