

DOE/NRC Natural Phenomena Hazards Meeting  
October 23-24, 2018

Location: US NRC Headquarters, 11555 Rockville Pike, Rockville, Maryland, 20852

**Tuesday, October 23**      Two White Flint Auditorium

- 7:45 a.m.      Registration, pick up name badges
- 8:00 a.m.      Welcome and introductions
- 8:15 a.m.      Update to ANS/ANSI 2.29 Probabilistic Seismic Hazard Analysis  
*Emily Gibson and Lisa Schleicher*
- 8:40 a.m.      Process for Ongoing Assessment of Natural Hazards Information at U.S. Nuclear  
Power Plants  
*Stephanie Devlin-Gill, Jon Ake, Laurel Bauer, Meredith Carr, Christopher Cook,  
Brad Harvey, Joseph Kanney, Michael Mazaika, Clifford Munson, Dogan Seber,  
Nebiyu Tiruneh, and Brett Titus*
- 9:05 a.m.      Towards a Risk-Based, Cost-Optimized Design of Safety-Related Nuclear  
Structures and Facilities  
*Chandrakanth Bolisetti, William Hoffman, Justin Coleman, and Andrew  
Slaughter*
- 9:30 a.m.      Interfacing Seismic Hazard Analysis with Structural Engineering Requirements  
*Jinsuo Nie, Jose Pires, and Dogan Seber*
- 9:55 a.m.      BREAK
- 10:15 a.m.      Impact Loading Due to Seismic Excitation  
*Nicholas D. Catella*
- 10:40 a.m.      Walkdown Evaluations of Electrorefining Project at Y-12 National Security  
Complex  
*Michael W. Salmon and Glenn Cox*
- 11:05 a.m.      Consideration of Component Level vs. Element Level Stresses in Concrete  
Nuclear Safety-Related Structures Under High Seismic Loading  
*Lisa Anderson and Luis Moreschi*
- 11:30 a.m.      Numerical Modeling of Concrete Building Pounding During Seismic Events-A  
Case Study  
*Asad Bassam, Ben Kosbab, and Payman Tehrani*
- 11:55 a.m.-1:15 p.m.      LUNCH (on your own)

- 1:15 p.m.      A Modern Computational Framework for the Nonlinear Seismic Analysis of Nuclear Facilities and Systems  
*David McCallen, Boris Jeremic, Patrick Laplace, Ian Buckle, Floriana Petrone, Denis Istrati, and Sherif Elfass*
- 1:40 p.m.      Modeling and Simulation of Earthquake Soil Structure Interaction for Nuclear Installations  
*Boris Jeremic, Yuan Feng, Han Yang, Hexiang Wang, Dragan Kovacevic, Floriana Petrone, Francis McKenna, and David McCallen*
- 2:05 p.m.      Site Response of the Atlantic Coastal Plain Strata Discerned From Horizontal-to-Vertical Spectral Ratios of Earthquake and Ambient Noise Ground Motions  
*Lisa S. Schleicher and Thomas L. Pratt*
- 2:30 p.m.      A Comparison of Surface- and Vertical Seismic-Derived Shear and *p*-wave Velocities  
*Peter J. Hutchinson, Jana M. Bridwell, and Alex Balog*
- 2:55 p.m.      BREAK
- 3:15 p.m.      An Updated Approach for Seismic Vertical SSI Analysis  
*Farhang Ostadan and Nan Deng*
- 3:40 p.m.      Implementation of FIRS for Deeply Embedded Structures  
*Tom Houston, Andrew Maham, and Greg Mertz*
- 4:05 p.m.      Limitation of the RVT Approach for its Application to Seismic SSI Analysis of Nuclear Structures  
*D. M. Ghiocel*
- 4:30 p.m.      Idaho National Laboratory Nuclear Safety Research Program  
*Justin Coleman*
- 4:55 p.m.      Adjourn

## Wednesday, October 24

### Session on Site Response, SSI, and Structural Analysis: Two White Flint Auditorium

- 8:00 a.m. Selection of Time Histories for Use in Nonlinear Response History Analysis  
*Nathan Yost, Richard Lee, and Michael W. Salmon*
- 8:25 a.m. Scaling Acceleration Response Spectra From One Damping to Another  
*Farhang Ostadan and James Marrone*
- 8:50 a.m. Impact of Topographic Effects on Site Response at Nuclear Facility Sites  
*Swetha Veeraraghavan, Justin L. Coleman, and Jacobo Bielak*
- 9:15 a.m. Three-dimensional Seismic Response of Large Embedded Structures  
*John Li, Kyungtae Kim, and Ahmed Elgamal*
- 9:40 a.m. BREAK
- 10:00 a.m. Preliminary Investigation of Effects of Sliding and Gapping Phenomena in Soil-Structure Interaction Modeling  
*Efe G. Kurt and Justin L. Coleman*
- 10:25 a.m. Free-field Displacements Calculated With Green's Functions Implemented in SC-SASSI  
*Julio Garcia, Benjamin Kosbab, and Huy Tran*
- 10:50 a.m. ASCE 4-16 Standard-Based Probabilistic SSI Analysis. Part 1: Application for Design Basis Level (DBE)  
*D. M. Ghiocel*
- 11:15 a.m. ASCE 4-16 Based Probabilistic Seismic SSI Analysis. Part 2: Application for Beyond Design Basis Level (BDBE)  
*D. M. Ghiocel*
- 11:40 a.m.-1:00 p.m. LUNCH (on your own)
- 1:00 p.m. Seismic Fluid-Structure Interaction in Liquid Metal Nuclear Reactors  
*Chingching Yu, Faizan Ul Haq, Michael Cohen, Justin Coleman, Philippe Bardet and Andrew Whittaker*
- 1:25 p.m. Improvements in Frequency-Domain SSI Capabilities  
*Isabel Cuesta*
- 1:50 p.m. Probabilistic Simulation Procedure for Developing Site-Specific Plane-Wave Coherence Functions  
*D. M. Ghiocel*

- 2:15 p.m. Fluid-Soil-Structure Interaction Analysis of Tank for Seismic Evaluation of Nozzle Subjected to Differential Movement  
*Natalie Doulgerakis, Michael Salmon, Benjamin Kosbab, and Payman Tehrani*
- 2:40 p.m. BREAK
- 3:00 p.m. Blind Prediction of the Capacity of Unreinforced Concrete Column Capitals  
*Michael Salmon, Eric MacFarlane, and Lawrence Goen*
- 3:25 p.m. Evaluation of Cast Iron Fittings in a Hazard Category 2 Nuclear Facility  
*Michael W. Salmon, Eric MacFarlane, Maia Menefee, and Rick Augustine*
- 3:50 p.m. An Optically-Based Sensor System for Critical Facilities Post-Event Seismic Structural Assessment  
*Floriana Petrone and David McCallen*
- 4:15 p.m. High Performance Simulations for Regional Scale Seismic Hazard and Risk Assessments  
*David McCallen, Arthur Rodgers, Anders Petersson, Mamun Miah, and Hans Johansen*
- 4:50 p.m. Reconvene as a single group for wrap-up
- 5:00 p.m. Adjourn

## Wednesday, October 24

### Session on Broad Natural Hazard Topics: Bethesda North Marriott Hotel, Room TBA

- 8:00 a.m.      The Role of Engineers in Society  
*Lawrence A. Salomone*
- 8:25 a.m.      Periodic Review and Update of NPH Assessments  
*Sharon Jasim-Hanif*
- 8:50 a.m.      Opportunities to Improve NPH Evaluations  
*Greg Mertz*
- 9:15 a.m.      Defense Nuclear Facilities Safety Board GIS Natural Phenomena Hazard Database  
*Yong Li and Lisa Schleicher*
- 9:40 a.m.      BREAK
- 10:00 a.m.     Overview of NRC's Probabilistic Flood Hazard Assessment Research Program  
*Joseph Kanney, Meredith Carr, Elena Yegorova, Mark Fuhrmann, Thomas Aird, and Jacob Philip*
- 10:25 a.m.     NUREG-2213: Updates to SSHAC Guidance  
*Miriam Juckett, John Stamatakos, Jon Ake, Cliff Munson, Kevin Coppersmith, and Julian Bommer*
- 10:50 a.m.     Next Generation Liquefaction Case History Database  
*P. Zimmaro, D. Y. Kwak, J. P. Stewart, Scott Brandenburg, John Stamatakos, Miriam Juckett, Thomas Weaver, and S. L. Kramer*
- 11:15 a.m.     Wind-Borne Missile Impact on Exterior Walls and Slabs in Nuclear Power Plants  
*Brian Terranova, Len Schwer, and Andrew Whittaker*
- 11:40 a.m.-1:00 p.m. LUNCH (on your own)
- 1:00 p.m.      Using a Graded Approach to the DOE-STD-1020-2012 Tornado Missile Criteria  
*Adeola Adediran, Jay Amin, and Brent Gutierrez*
- 1:25 p.m.      Comparison of Deterministic and Probabilistic Estimates of Liquefaction  
*Tom Houston, Andrew Maham, and Greg Mertz*
- 1:50 p.m.      Determination of the Magnitude and Source Location of Paleoearthquakes from Paleoliquefaction Evidence  
*Russell A. Green*

- 2:15 p.m. Oroville Dam Spillway - Engineering Geology Support Activities for Response and Recovery  
*Frank Syms*
- 2:40 p.m. BREAK
- 3:00 p.m. Assessment of Potential Hazard from Tectonic Surface Deformation at New Nuclear Power Facilities by the U.S. Nuclear Regulatory Commission – A Case History  
*Gerry L. Stirewalt*
- 3:25 p.m. Updating On-Site Ground Motion Reporting and Simulation of Ground Motions from Nearby Earthquakes at Lawrence Livermore National Laboratory  
*Arthur Rodgers*
- 3:50 p.m. Technical Basis for Updating Seismic Hazard Analysis Guidance in NUREG-1520, Standard Review Plan for Fuel Cycle Facility License Applications  
*John Stamatakos, Jonathan Marcano, Cliff Munson, Jon Ake, Patrick Koch, and Miriam Juckett*
- 4:15 p.m. Integration of Risk-informed Performance-based Approach to Seismic Safety of Nuclear Power Plants  
*Jose A. Pires, Jon P. Ake, J. Xu, H. Li, and R. Gascot-Lozada*
- 4:50 p.m. Reconvene as a single group for wrap-up
- 5:00 p.m. Adjourn