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### Biographies of Committee Members

**William F. Marcuson III (NAE)**, Chair, is president of W.F. Marcuson III and Associates, Inc., and director emeritus of the Geotechnical Laboratory of the U.S. Army Corps of Engineers' Waterways Experiment Station. He held the position of director of the laboratory from 1981 until his retirement in 1999 and was responsible for research, development, investigation, and analytical studies from both the theoretical and practical viewpoints in the fields of soil mechanics, engineering geology, rock mechanics, earthquake engineering, geophysics, military pavements, and Army mobility. His research activities focused on experimental and analytical studies of soil behavior related to geotechnical problems, seismic design and analysis of embankment dams, and seismically induced liquefaction of soils. He has authored more than 100 publications, including several state-of-the-art publications on in situ testing and sampling, soil dynamics, seismic design and analysis of embankment dams, and seismic rehabilitation of earth dams. Dr. Marcuson serves as a consultant on geotechnical problems and projects and is a licensed professional engineer in Mississippi and South Carolina and a chartered engineer in the United Kingdom. Dr. Marcuson holds a Ph.D. in civil engineering from North Carolina State University. He is an honorary member and fellow of the American Society of Civil Engineers (ASCE) and has served ASCE in a number of leadership positions. He has received numerous awards and honors, including the Walter L. Huber Research Prize (1981) and the Norman Medal (1997) from ASCE, the Federal Government Engineer of the Year (1995) from the National Society of Professional Engineers, and the Silver de Fleury Medal from the Army Engineer Association.

**Gregory C. Beroza** is an associate professor in the Department of Geophysics at Stanford University, where his research focuses on the physics of earthquake faulting as revealed by seismic waves and the implications for earthquake hazards and prediction. He holds a Ph.D. in geophysics from the Massachusetts Institute of Technology and received the National Science Foundation Presidential Young Investigator Award (1991 to 1996). He has served on the IRIS (Incorporated Research Institutions for Seismology) board of directors since 1990 and was secretary for the IRIS Global Seismic Network Standing Committee from 1990 to 1993. From 1996 to 1999, he was associate editor for the *Journal of Geophysical Research*. He has published more than 50 articles on geophysics and earthquakes.

**Jacobo Bielak** has been a professor in the Department of Civil and Environmental Engineering at Carnegie Mellon University since 1978. He holds a Ph.D. from the California Institute of Technology. His research interests include earthquake engineering, and structural and computational mechanics, such as large-scale computing, finite element, and boundary integral methods. In particular, he has focused on large-scale computing for modeling earthquake ground motion in large basins and has developed an original methodology for incorporating the effects of soil-structure interaction into the analysis and design of earthquake resistant structures. As principal investigator of the National Science Foundation's (NSF's) grand challenge project Earthquake Ground Motion Modeling in Large Basins, he led a team that developed a finite

element methodology and tools for simulating elastic wave propagation in heterogeneous media on parallel computers. This tool has been used in several countries to perform earthquake hazard estimation studies. He is the principal investigator of a current NSF Knowledge and Distributed Intelligence (KDI) project, Large-Scale Inversion-Based Modeling of Complex Earthquake Ground Motion in Sedimentary Basins, whose objective is to develop the capability for generating realistic inversion-based models of complex basin geology and earthquake sources. The section on soil-structure interaction contained in the National Earthquake Hazard Reduction Program Recommended Provisions for the Development of Seismic Regulations for New Buildings, is based largely on his work. He is a corresponding member of the Mexican Academy of Sciences and a recipient of the Allen Newell Medal for Research Excellence.

**Reginald DesRoches** is an assistant professor in the School of Civil and Environmental Engineering at the Georgia Institute of Technology. He holds a Ph.D. in structural engineering from the University of California at Berkeley. His primary research interests are seismic analysis and earthquake-resistant design of bridges, modeling and analysis of large structural systems, analytical modeling of seismic pounding in bridges and buildings, the application of smart materials for seismic retrofit of structures, and seismic isolation and passive damping applications. From 1989 to 1991 he worked as a structural designer for Mobil Offshore Engineering. He has served as session chairman and on the organizing committee for several conferences, such as the International Society for Optical Engineering conference in March 2001 and the Earthquake Engineering Research Institute 2000 conference. In 2001, Dr. DesRoches received the National Science Foundation's Career Award and the Presidential Early Career Award for Scientists and Engineers. He is also a recipient of the Outstanding Teaching Award from the School of Civil and Environmental Engineering.

**Eldon M. Gath** is president of Earth Consultants International. Mr. Gath has 20 years experience in the identification, investigation, and remediation of geologic hazards, involving land use planning, environmental assessments, and field exploration and analysis. He has particular experience with the evaluation of active faults for construction site planning, the development of seismic safety programs and policies, and the determination of remediation and design alternatives for geologically sound site development. He holds a B.S. in geology from University of Minnesota's Institute of Technology and has continued with postgraduate work at California State at Los Angeles, the University of California at Riverside, and the University of California at Irvine. He was president of the Association of Engineering Geologists in 1997.

**Robert D. Hanson (NAE)** is professor emeritus for the Department of Civil Engineering at the University of Michigan and a consultant for the Federal Emergency Management Agency (FEMA). He holds a Ph.D. in civil engineering from the California Institute of Technology and is a registered professional engineer in North Dakota (inactive) and Michigan (current). He began his teaching career at the University of Michigan in 1966 and served as chairman of the Department of Civil Engineering from 1976 to 1984. His research interests in earthquake engineering include evaluation of existing buildings for seismic vulnerabilities, design of seismic upgrades to minimize vulnerabilities, evaluation of earthquake-damaged buildings, design of repair and seismic upgrade schemes for earthquake-damaged buildings, use of supplemental damping systems to enhance seismic performance, development of new supplemental energy dissipation systems, and development of active control devices for vibration control of buildings

using electrorheological materials. He has more than 100 publications and has received numerous awards, including being made an honorary member of the Earthquake Engineering Research Institute (2001) and a fellow of the American Society of Civil Engineers (1999). In 1996 he received the Meritorious Service Award from FEMA.

**Elizabeth A. Hausler** recently received her Ph.D. from the Department of Civil and Environmental Engineering at the University of California, Berkeley. Her dissertation research focused on the influence of ground improvement on settlement and liquefaction of soils supporting structures on shallow foundations. The research was highly experimental in nature, including six dynamic geotechnical centrifuge tests at the University of California, Davis, and the Public Works Research Institute (Japan), and a full-scale blast-induced liquefaction test using cement deep mixing to minimize settlement in Hokkaido, Japan. She holds an M.S. in geotechnical engineering from the University of California, Berkeley and an M.S. in environmental science, policy and law from the University of Colorado at Denver. She has five years' consulting experience in the fields of geotechnical engineering, environmental engineering, and environmental litigation support working for Dames and Moore in Denver and Salt Lake City, and Peterson Consulting Limited Partnership in Chicago. Dr. Hausler is currently a Fulbright scholar at the Indian Institute of Technology, Bombay. She is studying earthquake-resistant housing reconstruction and retrofitting programs in Gujarat, India.

**Anne S. Kiremidjian** is professor of civil and environmental engineering and director of the John A. Blume Earthquake Engineering Center at Stanford University. She holds a Ph.D. in structural engineering from Stanford University and has been on the faculty since 1978. Her research has focused on earthquake hazard and risk analysis modeling, earthquake damage and loss estimation, risk analysis of transportation systems, reliability analysis of industrial systems, and structural damage monitoring methods. Dr. Kiremidjian was the recipient of the School of Engineering Distinguished Advisor Award, Stanford University, June 1989; the National Science Foundation Faculty Award for Women, 1991-1995; the Society for Women Engineers Distinguished Educator Award, 1992; the American Society of Civil Engineers, Technical Council on Lifeline Earthquake Engineering, Distinguished Service Award, 1995; the Applied Technology Council, Award for Excellence in Loss Estimations, July 1998. She has more than 150 publications, including journals, papers, technical reports, and conference proceeding papers.

**James R. Martin II** is an associate professor of civil and environmental engineering with the geotechnical division at Virginia Polytechnic Institute. He holds a Ph.D. in civil engineering from Virginia Polytechnic Institute. Dr. Martin serves as codirector of the Earthquake Engineering Center for the Southeastern United States (ECSUS) and is a recently elected board member of the Centre for the Use of Research and Evidence in Education. His research focuses on geotechnical earthquake engineering, soil and site improvement, natural hazard assessment, numerical modeling, GIS applications, and engineering curriculum development. Recent projects include seismic hazard studies of the eastern and central United States, fundamental studies of the liquefaction behavior of silty and clayey soils, Geographic Information System seismic hazard mapping of South Carolina, and site response, liquefaction, and soil improvement studies associated with recent earthquakes in Turkey, Taiwan, and Nisqually in Washington State. His recent activities also include teaching at Federal Emergency Management Agency's Multi-

Hazard Building Design Institute in Emmitsburg, Maryland. He has received eight teaching awards, including awards at the national, state, and university levels. He was the recipient of the American Society of Civil Engineers Norman Medal (1996), the State Council of Higher Education of Virginia Award for Excellence in Teaching and Research (1996), and the National Science Foundation Young Investigator Award (1993-1998). He is active in building code development, has frequently presented workshops on the application of building code provisions, and has coauthored seismic design standards for South Carolina. Finally, he is an active consultant and has worked on a variety of geotechnical and earthquake engineering projects for more than 40 private and public organizations. His typical projects involve probabilistic seismic hazard assessment and development of ground motions for the analysis of major dams and nuclear power plants, development of soil improvement schemes for the mitigation of seismic damages, and dynamic numerical modeling of soil-structure systems.

**Don E. Middleton** is head of the Visualization and Enabling Technologies Section in the Scientific Computing Division of the National Center for Atmospheric Research. He is responsible for leading a program that encompasses data access and analysis, advanced collaborative visual computing environments, enterprise Web engineering, and education and outreach activities. His professional interests center on analyzing and visualizing large, complex earth system data sets and communication using advanced visual technologies. He directed the development of the Virtual Earth System and Exploring the Earth System on the Second Web, a science and technology demonstration that blends virtual stereo three-dimensional technologies, virtual worlds, and three-dimensional animation representing scientific simulation and research. He is currently serving as co-principal investigator for the National Science Foundation-sponsored Visual Geophysical Education Environment and coordinating principal investigation on the Department of Energy-sponsored Earth System Grid Research Project. He holds an M.S. in electrical and computer engineering from Louisiana State University.

**Douglas J. Nyman** of D.J. Nyman and Associates is a consulting engineer with 30 years of experience. He received a Ph.D. in civil engineering (structural) from the University of Illinois and is a licensed professional engineer in Alaska and Texas. He is recognized as an expert in the mitigation of earthquake and geotechnical hazards for oil and gas pipeline systems. He has served as the principal seismic engineering consultant to the Trans-Alaska Pipeline System for nearly 20 years and previously was employed in a similar capacity by the pipeline company during the design and construction phases. He has authored numerous seismic criteria documents and design specifications for national and international pipeline projects. Dr. Nyman has served on U.S. government-sponsored panels and committees engaged in the development of seismic design standards for lifeline systems and was the principal investigator for a National Science Foundation project to develop guidelines for the seismic design of oil and gas pipelines. He is a Fellow of the American Society of Civil Engineers and has served in several leadership positions with the Technical Council on Lifeline Earthquake Engineering. He is also a member of the Earthquake Engineering Research Institute and the Seismological Society of America. In 2001 Dr. Nyman received the Distinguished Alumnus Award from the University of Illinois Department of Civil Engineering. He is the 2002 recipient of the Charles Martin Duke Lifeline Earthquake Engineering Award.

**Fredric Raichlen (NAE)** is professor emeritus of civil engineering and mechanical engineering at the California Institute of Technology. He received a B.E. from the Johns Hopkins University

and an S.M. and Sc.D. from the Massachusetts Institute of Technology. His experience encompasses fundamental and applied research as well as teaching and consulting in coastal engineering. His research has focused on tsunamis: their generation, propagation, and coastal effects. Investigations relating to the latter have included problems of the run-up of nonbreaking and breaking tsunami-like waves, harbor resonance, ship mooring dynamics, and the structure of wave interactions. In addition to the tsunami research, he has investigated a range of problems dealing with breaking waves, such as the mechanics of the interaction of breaking waves with an armored sea bottom, the entrainment of air by plunging breaking waves and various characteristics of the bow waves of ships. He is the author of more than 70 publications in various areas of fluid mechanics and coastal engineering. Dr. Raichlen is a fellow of the American Society of Civil Engineers (ASCE), and the recipient of the ASCE 1994 John G. Moffatt-Frank Nichol Harbor and Coastal Engineering Award. He is a registered civil engineer in California and New Jersey and consults with various organizations on problems in hydraulics and coastal engineering.

**Andrew Taylor** is an associate with the structural engineering group of KPFF Consulting Engineers. He holds a Ph.D. in civil engineering from the University of Texas, Austin. He has 12 years of experience in structural engineering research and 5 years of experience in practice. His research experience includes experimental and theoretical investigation of reinforced concrete structures, seismic performance of nonstructural components, seismic damage modeling, and seismic isolation. His design experience includes a range of structural types, including six base-isolated buildings, a building with supplemental damping devices, and application of Federal Emergency Management Agency seismic design guidelines for both new and retrofit construction. Dr. Taylor has published papers on a broad range of earthquake engineering topics and conducted seminars and workshops on earthquake engineering. He received the American Concrete Institute 2001 Structural Research Award for Cumulative Seismic Damage of Circular Bridge Columns: Variable Amplitude Tests and the 1996 bronze medal from the National Institute of Standards and Technology for research in earthquake engineering.

**Richard N. Wright (NAE)** is retired as director of the Building and Fire Research Laboratory of the National Institute of Standards and Technology and as professor of civil engineering at the University of Illinois, Urbana-Champaign. He received bachelor's and master's degrees from Syracuse University and a Ph.D. from the University of Illinois, Urbana-Champaign, all in civil engineering. He has registered as a civil engineer in New York and structural engineer in Illinois. He has published more than 100 articles on building and fire research, computer-integrated construction, formulation, and expression of standards, performance of structures, structural design methods for earthquakes and other dynamic loads, flow and fracture in structural metals, and mechanics of thin-walled beam structures. He has been chairman of the Board on Infrastructure and the Constructed Environment of the National Academies; co-chairman of the Subcommittee on Construction and Building of the National Science and Technology Council; chairman of the Interagency Committee on Seismic Safety in Construction; U.S. chairman of the U.S.-Japan Panel on Wind and Seismic Effects; president of the International Council for Research and Innovation in Building and Construction; and president of the Liaison Committee of International Civil Engineering Organizations. He is an honorary member of the American Society of Civil Engineers, a fellow of the American Association for the Advancement of Science, and a member of the Earthquake Engineering Research Institute.