

A Report Series on Progress and Opportunities Toward Decreasing the Risk of Offshore Energy Operations

Committee

Richard Sears

Chair

Richard A. Sears, Chair is a Professor of the Practice in the Department of Energy Resources Engineering, Stanford University, where he develops and teaches courses in energy systems, economics, and oil and gas exploration technology. He was appointed as a member of the Ocean Energy Safety Advisory Committee for the United States Department of the Interior in 2011. He previously served as the chair for the Committee on the Application of Real-Time Monitoring of Offshore Oil and Gas Operations and as a member of the Committee on Options for Implementing the Requirement of Best Available and Safest Technologies for Offshore Oil and Gas Operations. He also served as chief science and technology adviser to the National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling that was established by President Obama in May 2010. Mr. Sears had a 33-year career with Shell Oil Company and Royal Dutch Shell, where he acquired significant domestic and international experience in the upstream oil and gas industry. His technical and managerial positions included exploration geophysicist, technical instructor, economist, strategic planner, and general management. His managerial positions ranged from exploration and research to fully integrated exploration and production business management, and his responsibilities have included business planning and forecasting, financial responsibility, and staff planning and development. Between 1999 and 2005, Mr. Sears was a vice president for Royal Dutch Shell, where he was responsible for global deepwater technical services. Between 2006 and 2009, Mr. Sears worked as external research co-ordinator for the Shell Group and was appointed a visiting scientist at the Massachusetts Institute of Technology (MIT). In this position, he was responsible for managing Shell's energy research activities at MIT and other key U.S. universities and for integrating external research objectives with internal technology strategies. While at MIT, he was an active participant in the campus wide Energy Initiative, carried out applied research in energy systems, taught and contributed to courses in several departments, and served as a liaison between the MIT Energy Initiative and oil companies. Mr. Sears is the author of numerous external and internal publications. He received a BS in physics from Stanford University and an MS in geophysics from Stanford University.

Norman A. Abrahamson

Member

Norman A. Abrahamson (NAE), an Adjunct Professor in Civil and Environmental Engineering at the University of California, Berkeley, has been involved in research at the interface between earthquake science (geology and seismology) and earthquake engineering (geotechnical and structural). Dr. Abrahamson is involved with studies of seismic safety of critical infrastructure that is moving from simple standards (such as building codes) toward risk-informed decision-making. Dr. Abrahamson has been involved in strong motion seismology for 18 years. He has extensive experience in the practical application of seismology to the development of deterministic and probabilistic seismic criteria (response spectra, and/or time histories) for engineering design or analyses. He has been involved in developing design ground motions for hundreds of projects including dams, bridges, nuclear power plants, nuclear waste repositories, water and gas pipelines, rail lines, ports, landfills, hospitals, electric substations, and office buildings. About 3/4 of these projects have been in the Western US and the other 1/4 have been in the Eastern US or outside of the US. At PG&E, Dr. Abrahamson is responsible for developing ground for seismic evaluations of PG&E facilities including nuclear power plants, nuclear waste storage, dams, penstocks, electric substations, office buildings, and gas pipelines. He is also responsible for the technical management of the PG&E seismic research program funded through the Pacific Engineering Research Center. As a consultant, Dr. Abrahamson has been involved in the ground motion studies for several major engineering projects in California. Recent projects include the Caltrans major toll bridge retrofit projects, the CalFed project for the Sacramento Delta levee system, the BART seismic retrofit project, and the SFO expansion. He has been involved in developing ground motion for nuclear plants and dams in the United States and in other countries. He served as the leader of the ground motion characterization team for the proposed high-level nuclear waste repository at Yucca Mountain. Dr. Abrahamson was elected to the National Academy of Engineering in 2018. Dr. Abrahamson received his Ph.D. and B.A. in Geophysics from the University of California at Berkeley.

Paul G. Bradley

Member

Paul G. Bradley is currently the Health and Safety Executive's (HSE) Energy Division Head of Operations and part of the Energy Divisions Senior Leadership Team with overall responsibility for Offshore and Onshore Well Engineering Operations, Diving Operations, Mines and Quarries. Mr. Bradley joined the HSE (the UK's Independent Regulator) in 2008 as HM Principal Inspector of Mechanical Engineering in the Major Accident Hazardous Industries Sector, following 28 years of working as a Mechanical Engineer in the UK underground coal mining industry and holding several senior management positions. Mr. Bradley joined the Institute of Mechanical and Electrical Engineers in 1981 until its merger with the Midland Institute of Mining Engineers and has been an active member ever since. He is a past President of the Midland Institute of Mining Engineers and has served as a council member for the past 8 years.

Manson K. Brown

Member

Vice Admiral Manson Brown is a retired U.S. Coast Guard Vice Admiral (VADM) and public official. His top military decoration is the Coast Guard Distinguished Service Medal. In 1994, he became the first recipient of the Coast Guard Captain John G. Witherspoon Award for Inspirational Leadership. In 2012, he was honored with the Golden Torch Award by the National Society for Black Engineers. In 2014, he was honored by the National Association for the Advancement of Colored People with the Meritorious Service Award, an honor annually bestowed to a service member in a policy-making position for the highest achievement in military equal opportunity. VADM Brown was sworn in as the Assistant Secretary of Commerce for Environmental Observation and Prediction on March 18, 2015. In this role he strategically drove Administration policy, programming, and investments for all NOAA observing systems, including in situ instruments and satellites, and the process of converting observations to predictions for environmental threats related to weather, climate, water, oceans, and space weather. He also served as NOAA Deputy Administrator and Chair of NOAA's Observing Systems Council. He graduated in 1978 from the U.S. Coast Guard Academy with a Bachelor of Science degree in Civil Engineering. He is a registered professional civil engineer. He also holds Master of Science degrees in Civil Engineering from the University of Illinois at Urbana-Champaign and National Resources Strategy from the Industrial College of the Armed Forces. In 2016, he received an Honorary Doctorate from Massachusetts Maritime Academy.

Paul S. Fischbeck

Member

Paul Fischbeck is a Professor in the Department of Engineering & Public Policy and the Department of Social & Decision Sciences at Carnegie Mellon University, Pittsburgh, Pennsylvania. His general research involves normative and descriptive risk analysis. Past and current research includes the development of a risk index to prioritize inspections of offshore oil production platforms, an engineering and economic policy analysis of air pollution from international shipping, a large-scale probabilistic risk assessment of the space shuttle's tile protection system, and a geographic information system (GIS) designed to evaluate health risk, economic potential, environmental justice, and political factors of oil refineries and abandoned industrial sites using a variety of metrics. He has written extensively on various applications of decision and risk analysis methods and has won several awards from the Institute of Operations Research and Management Sciences (INFORMS). He has chaired two and served on eight other National Academy panels investigating such topics as the risks faced by engineered marine systems, risk assessment of the Alaska oil and gas infrastructure, terror attacks on US shipping, safety of double hull tankers, and risks from oil barge traffic around Cape Cod and oil spills in the Aleutian Islands. He is also the co-founder of the Brownfield center at Carnegie Mellon, an interdisciplinary research group investigating ways to improve industrial site reuse. A 2002 book, *Improving Regulation* (RFF Press, co-edited with Scott Farrow), presents a dozen case studies of how to integrate insights from multiple disciplines to improve the regulatory process. Dr. Fischbeck received his BS in Architecture from University of Virginia, MS in Operations Research & Systems Analysis, from the Naval Postgraduate School and PhD in Industrial Engineering & Engineering Management from Stanford University.

Dwight Johnston

Member

Dwight Johnston has worked in the oil and gas industry for more than 40 years, 36 of those years for Shell Oil Company in a variety of positions, including Asset or Operations Management, Project Management, and Engineering positions. As an independent consultant, he has supported a variety of clients in developing safety management systems, process safety management programs, and operating/maintenance management systems. Mr. Johnston spent most of his career in the U.S., but he spent 10 years working on international projects, living overseas for 3 years. Before retiring from Shell in December 2015, he worked for eight years as the Global Process Safety Manager and VP HSE for Shell's Global Deepwater Organization. In the Global PSM role, he worked across Shell's business; supporting the exploration and production, the refining/manufacturing and the pipeline organizations. Mr. Johnston has a BS in civil engineering from Texas A&M University.

Ulku G. Oktem

Member

Ulku G. Oktem is Co-Founder, Chief Executive Officer of Near-Miss Management LLC and is a globally recognized expert in the field of Near-Misses. Her pioneering work has received international recognition and coverage in scientific journals and has been heavily adopted by chemical companies and organizations such as CCPS, OSHA. She also serves as Adjunct Professor at the Operations and Information Management Department and Senior Fellow at the Risk Center of the Wharton Business School. Her prior industry experience includes managing product development of specialty chemicals at Rohm & Haas. She holds a PhD in Chemical Engineering from the University of Delaware, MS from the Clarkson College, and BS from the Middle East Technical University.

S. Camille Peres

Member

S. Camille Peres is an Associate Professor with Environmental and Occupational Health at Texas A&M University and she is also the assistant director of Human Systems Engineering with the Mary Kay O'Connor Process Safety Center. She does collaborative research on Human Factors and high-risk processing industry such as the oil and gas industry, chemical processing, and emergency response. She is currently involved in investigations regarding: performance implications for procedure design and use; understanding Human Robotic Interaction in disaster environments; and measuring team performance in Emergency Operations. She received MA and PhD in Psychology from Rice University MA and PhD, MA in Psychology from University of Houston-Clear Lake, and BA in Technical Theatre from University of Houston-Clear Lake.

Kathy A. Seabrook

Member

Kathy A. Seabrook is the founder and CEO of Global Solutions, Inc. She has over 30 years of diverse safety, health and environmental management experience working with multinational and US/UK companies, across industry, globally. She is a US Certified Safety Professional (CSP), UK Chartered Fellow of the Institution of Occupational Safety and Health (CFIOSH) and European Occupational Safety and Health Manager (EurOSHM). Using a risk-based approach, Seabrook assists companies with strategically managing their health, safety and environmental risks through their sustainable business strategies, integrated management systems, policies, processes, programs, and practices. Incorporating principles of culture change, leadership development, and global safety and health management, a company more efficiently and effectively embraces an integrated approach to strategy, policy, corporate standard, risk assessment, competency and audit process development and implementation. Safety and health management becomes a lever for improving corporate performance as well as a culture that supports safety and health. Seabrook's global safety and health experience informs her keynote speaking, leadership and OHSMS workshops, global leadership coaching, cross cultural team building and other safety related education programs. She is an US delegate and Vice Chair of the US Technical Advisory Group to TC283/ISO 45001, current member of the advisory board for the Capitals Coalition, past president of the American Society of Safety Professionals and former Board Chair of the Center for Safety and Health Sustainability. Seabrook holds a BS in Chemistry from James Madison University.

Charles R. Williams, II

Member

Charles R. Williams served as the Executive Director for the Center for Offshore Safety (COS) from March 2012 to May 2020. He is currently an independent consultant. Following the Deepwater Horizon accident in 2010, Mr. Williams' technical expertise and focus included industry operations, process change and improvement, as well as preparedness and response to major oil and gas incidents. Because of this work and leadership, Mr. Williams helped to create the COS and establish the Marine Well Containment Company—an industry sponsored company continuously ready to respond to a well control incident. After a 40-year career, Mr. Williams retired from Shell Oil as Global Chief Scientist in 2012. During his tenure at Shell, Mr. Williams acquired extensive technical expertise in the upstream oil and gas industry, holding many technical and senior managerial positions including Global Vice President of Research and Development (R&D). Mr. Williams' technical work has included the development of equipment, policies and procedures, and best practices for extreme environment wells. Mr. Williams has testified and presented extensively on process improvement, safety management, drilling, drilling safety, and technology to various groups including Congressional Committees, Center for Strategic and International Studies, Chemical Safety Board, Presidential Commission on Deepwater Horizon, International Regulators Forum, 11th National Conference on Science, Policy, and Environment, and the Marine Board of the National Academies. Mr. Williams has a BS in mechanical engineering from the University of Tennessee and is a licensed Professional Engineer.

Mark Hutchins

Staff Officer

Mark Hutchins is a senior program officer for the Transportation Research Board (TRB) of the National Academies of Sciences, Engineering, and Medicine. He has served as study director for consensus studies on topics that include an evaluation of the U.S. offshore oil and gas inspection program, a cost assessment of U.S. polar icebreakers, the application of remote real-time monitoring to offshore oil and gas operations, and worker health and safety for offshore wind farms. Mr. Hutchins has also supported TRB studies on testing electronically controlled pneumatic brakes for high-hazard flammable trains and determining future U.S. air traffic controller staffing needs. Before joining TRB in 2010, Mr. Hutchins worked as a senior consultant and project manager for Macro Design Group, providing program analysis and program management support to public and private sector clients. Prior to that, Mr. Hutchins worked as a project manager and systems analyst for Northrop Grumman Information Technology, where he managed web development, data capacity, and data mining projects. Mr. Hutchins has an MA in political science from The American University and a BA in political science from the University of North Carolina, Asheville.