Review of Methods and Data Needs for Calculating the Potential Impact Radius of a Natural Gas Pipeline Failure for Regulatory Compliance

Committee

Gary D. Kenney

Chair

Gary D. Kenney (Chair) is Managing Principal at Sine Rivali, LLC, where he provides technical consulting services in the areas of accident investigation, audit, and development and implementation of integrity and risk management systems. He has been consulting for over 35 years, with experience in pipeline safety regulation and law, regulatory economics and impact analysis, developing safety and environmental management programs, and investigating human factors in accidents and system failure. He led several technical and forensic investigations into significant pipeline failures and gas explosions across the world, including the BP Macondo/Deepwater Horizon blowout in the Gulf of Mexico, the Varanus Island gas pipeline explosion in Western Australia, the Longford gas plant explosion in Victoria, Australia, and the Piper Alpha offshore platform explosion in the North Sea. He has provided technical advice to the U.S. government to assist with the administrative oversight of the operation of a network of hazardous liquid pipelines. He also seconded and assisted the U.K. Health and Safety Executive, the Australian Government's WorkSafe agency, and the British Columbia Safety Authority and Oil & Gas Commission to develop and implement Major Accident Hazard regulations. He has a B.S. in Physics and Mathematics from the University of Akron, an M.S. in Environmental Engineering and Business from the University of Cincinnati, and a Ph.D. in Environmental Health from the University of Cincinnati.

Gregory B. Baecher

Member

Gregory B. Baecher (NAE) is Glenn L Martin Institute Professor of Engineering at the University of Maryland. He works principally in risk management of civil infrastructure. He has been involved in several enterprise risk management efforts including the U.S. Interagency Performance Evaluation Taskforce on Hurricane Katrina, the Natural and Chronic Risk assessment for the Panama Canal Authority (ACP), and the Joint (hydropower) Industry Project on Spillway Safety. He has co-authored 19 National Academy consensus studies on risk management in federal practice, including those on The Army Corps of Engineers use of risk analysis in flood damage planning, long-term management of Mt St Helens, the National Bio-Ag Defense Laboratory, the Department of Homeland Security's approach to risk analysis, and a review of the Risk Assessment Bulletin of the Office of Management and Budget. He has served on dam safety reviews including the Federal Tri-Agency review of 2020 and has authored six books and 250+ publications on these topics. He holds a Ph.D. in Civil Engineering from Massachusetts Institute of Technology and B.S.C.E. from the University of California, Berkeley.

Danny G. Cote

Member

Danny G. Cote (retired) was principal at DGC Pipeline Safety & Compliance Solutions. Prior to this role, he was an employee of NiSource and its corporate predecessors for 45 years. From 2012 to 2017, he served as the VP of Pipeline Safety, with responsibility for operational regulatory strategy and the safe operation of transmission and distribution assets across the 7 States of the NiSource system. Prior to this role, he also served as VP of Operations for NiSource assets in New England, Pennsylvania, Virginia, and Maryland, where he was responsible for system construction, maintenance, system compliance, and external operations regulatory relationships. He has a deep knowledge of federal pipeline safety code and multiple state gas operations codes, distribution and transmission leak survey and inspection requirements, damage prevention requirements, corrosion mitigation testing, and maintenance practices. He has created many procedures to comply with federal and state codes and has been responsible for integrating new procedures across nine eastern state utilities. He was a previous member of the American Gas Association Construction and Maintenance Committee, the Northeast Society of Gas Operators, the Southern Gas Association, and the Pennsylvania Gas Association. He also served on the Pipeline and Hazardous Materials Safety Administration (PHMSA) committee to standardize Operation Qualification Practices across the natural gas industry.

Mary S. Friend

Member

Mary S. Friend is the Director of the Gas Pipeline Safety Division of the Public Service Commission of West Virginia since 2014. From October 2009 to 2014, she was a Pipeline Safety Specialist (Instructor) at the Pipeline and Hazardous Materials Safety Administration (PHMSA) Training and Qualification Center in Oklahoma City. She began her career in 1979 at Columbia Gas Transmission in Charleston, WV. Over the course of her career, she has worked in exploration and production, underground gas storage, pipeline operations, and pipeline safety, affording her extensive gas transmission pipeline experience. She is responsible for managing the pipeline safety program overseeing approximately 19,000 miles of gas and hazardous liquid pipelines in West Virginia. While at PHMSA, she developed and taught a variety of courses and was a member of PHMSA's Operations & Maintenance Enforcement Team, Gas Integrity Management Team, and the Public Awareness Effectiveness Ad Hoc Team. She is a past national chair for National Association of Pipeline Safety Representatives (NAPSR), is a member of the Gas Piping Technology Committee, and participated in the development of several API standards. She has been awarded the NAPSR Chairman's award for Outstanding Service and the Lifetime Leadership award for her many contributions to improving pipeline safety. She also received several honors while at PHMSA. She earned a bachelor's degree in Geology from Lafayette College and a master's degree in Geology from Temple University.

Peter E. Hamlington

Member

Peter E. Hamlington is a Professor and Woodward-Vogel Leadership Chair in the Paul M. Rady Department of Mechanical Engineering at the University of Colorado, Boulder. His research is focused on understanding and modeling turbulent reacting flows in engineering and geophysical contexts using numerical simulations. He has studied problems in high-speed combustion, fire in built and natural environments, high-temperature industrial processing, wind energy, and ocean carbonate chemistry. Funding for his research has come from a broad range of sources, including the National Science Foundation (NSF), the Strategic Environmental Research and Development Program, and the National Laboratory of the Rockies, where he holds a joint appointment. He has received an NSF CAREER Award from the Combustion and Fire Sciences Program, previously served as a National Research Council Postdoctoral Research Associate at the Naval Research Laboratory in Washington, DC, and is the current Chair of the Mechanical Engineering Department Heads Executive Committee of the American Society of Mechanical Engineers. He has a B.A. in Physics from the University of Chicago and M.S. and Ph.D. degrees in Aerospace Science from the University of Michigan, Ann Arbor.

Mary L. McDaniel

Member

Mary L. McDaniel is a retired pipeline safety expert with a distinguished career in regulatory oversight and technical leadership. She began her pipeline regulatory career with the Railroad Commission of Texas in 1983 as a staff engineer, where she was responsible for instructing field staff in corrosion control and cathodic protection. In 1987, she was appointed Director of Pipeline Safety at the Railroad Commission of Texas, a role she held for over twenty-five years. During her tenure, she oversaw Pipeline, Rail, and Liquefied Petroleum Gas Safety programs, and supervised up to 100 personnel as Safety Director for the State of Texas. Throughout her career, she was responsible for planning, developing, and implementing pipeline and other regulatory safety programs. In 2010, she joined the Pipeline and Hazardous Materials Safety Administration (PHMSA) as a Compliance Officer. She later served as Operations Supervisor, Southwest Region Director, and ultimately retired in 2024 as Senior Technical Advisor to the Associate Administrator. She holds a Bachelor of Science in Chemical Engineering from the University of Texas and is a registered professional engineer in the State of Texas.

Philip J. Oakes

Member

Philip J. Oakes currently serves as the Chief Operating Officer for the National Association of State Fire Marshals as well as being on the Board of Directors for the National Board on Fire Service Professional Qualifications. Previously, he retired as the Fire Chief of Laramie County Fire District #4 and served as the State of Wyoming Fire Services Training Director. He has served as a contributor for the American Petroleum Institute’s Recommended Practice 1174 Pipeline Emergency Preparedness and Response and Recommended Practice 1162 Public Awareness Programs for Pipeline Operators. He has also been a co/author of the Fire Services Training Officers Desk Reference Manual and a contributor for the Fundamentals of Fire Fighter Skills - 3rd edition. He and his team at the State of Wyoming received the Chief V. Kenneth Elmore Memorial Award for Excellence in Certification and the Seal of Excellence from the National Fallen Firefighters Foundation. He is a certified Firefighter II, Hazardous Materials Incident Commander, Fire Officer III, Fire Service Instructor III, and Fire Investigator. He is currently a member of the Florida Fire Marshals and Inspectors Association. He has a B.S. in Business Administration from Columbia Southern University, an A.A.S. in Fire Science Technology from Casper College, and an A.S. in Business Management from Laramie County Community College.

Arvind P. Ravikumar

Member

Arvind P. Ravikumar is the Frank W. Jessen Centennial Fellow in Petroleum Engineering and Assistant Professor of Petroleum and Geosystems Engineering at the University of Texas at Austin, where he also co-directs the Center for Energy and Environmental Systems Analyses (CEESA). He has published over 60 articles in peer-reviewed journals, primarily in the areas of methane measurement science, technology evaluation, and energy systems analysis across oil and gas supply chains. He has been a lead investigator for several large-scale field campaigns quantifying methane emissions and evaluating monitoring technologies, and developed the FEAST-Pipeline model, a techno-economic model for assessing pipeline leak detection and repair policy. He routinely advises state and federal governments and served on the Pipeline Hazardous Materials Safety Administration's Gas Pipeline Advisory Committee's Gas Pipeline Advisory Committee from 2018 to 2024. He is a recipient of the Sustainability and Stewardship in the Oil and Gas Industry Award and the Regional Data Science and Engineering Analytics Award from the Society of Petroleum Engineers and a James J Morgan early career award honorable mention from the American Chemical Society. He completed post-doctoral training at Stanford University and graduated with a Ph.D. from Princeton University.

Albert M. Valerioti

Member

Albert M. Valerioti served 29 years in the Waterbury Fire Department, where he served as Director of Training and Safety Officer of the Heavy Rescue Hazmat team. During that time and since, he has taught hazardous materials response and planning in 49 states, 3 territories, and 4 countries, giving him considerable experience in conditions, response, capabilities, planning and hazards throughout the nation. Since 1987, he has been using and teaching the ALOHA air dispersion modelling program from NOAA/EPA to help responders plan for and respond to various releases of toxic and flammable chemicals. As a member of the Waterbury F.D., he has used ALOHA to predict outcomes, recommend mitigation, and help plan for possible releases. He has presented ALOHA and other Hazmat classes at numerous Conferences throughout the nation and continued learning through the National Fire Academy, FEMA and State Fire Academies. He has been recognized as Instructor of the Year by the International Association of Fire Fighters, the State of Connecticut and received awards from the Hotzone conference (EPA Region 6).