Criteria for Installing Automatic and Remote-Controlled Shutoff Valves on Existing Gas and Hazardous Liquid Transmission Pipelines

Committee

Ian P. Savage

Chair

Ian P. Savage (Chair) is a Professor of Instruction in the Department of Economics and Transportation Center at Northwestern University and the Associate Chair of the Department of Economics. His research has centered on transportation safety, urban public transportation, and the economics of safety, safety regulation, and transportation. He has conducted research into safety performance and the effectiveness of safety regulations in most modes of transportation, with a particular emphasis on the trucking and railroad industries. He has written several book chapters on economics and transportation, including “Economics of Transportation Safety” in the International Encyclopedia of Transportation and “Economic Regulation of Transport: Principles and Experience” in the International Handbook on Economic Regulation. He is the president of the Transportation and Public Utilities Group of the Allied Social Sciences Associations and has been president of the Transportation Research Forum. He has served on the organizing committees of local, national, and international professional organizations, including the International Transport Economics Association, The Econometric Society, and the World Conference on Transport Research Society. He earned a B.A. in Economics from the University of Sheffield and Ph.D. from the School of Economic Studies and Institute for Transport Studies at the University of Leeds. He has been involved in several Transportation Research Board (TRB) activities, including serving as a member on committees for several reports evaluating the Federal Railroad Administration’s Research and Development Program (2007, 2011, and 2020) and the committee for the special report Safely Transporting Hazardous Liquids and Gases in a Changing U.S. Energy Landscape. In addition, he is a member on the TRB Standing Committee on Highway/Rail Grade Crossings.

Lori S. Bennear

Member

Lori S. Bennear is the Juli Plant Grainger Associate Professor of Energy Economics and Policy at the Nicholas School of the Environment at Duke University with secondary appointments in Economics and Public Policy. She is serving as the Senior Associate Dean for Academics at the Nicholas School. Her research focuses on evaluating the effectiveness of flexible environmental policies, including information disclosure regulations, management-based regulations, liability regimes, and demand-side management programs. She has applied these evaluations across a range of environmental domains, including energy, toxics, and drinking water. Her recent work focuses on developing best practices for adaptive regulation of emerging technologies in the energy domain, including deepwater oil and gas, offshore wind, and autonomous vehicles. She co-edited Policy Shock: Recalibrating Risk and Regulation after Oil Spills, Nuclear Accidents and Financial Crises. She received a Ph.D. in Public Policy from Harvard University, an M.A. in Economics from Yale University, and an A.B. in Economics and Environmental Studies from Occidental College. She previously served on the Transportation Research Board's committee for the special report Modernizing the U.S. Offshore Oil and Gas Inspection Program for Increased Agility and Safety Vigilance.

Robert B. Gilbert

Member

Robert B. Gilbert (NAE) is Chair of the Department of Civil, Architectural and Environmental Engineering at The University of Texas at Austin, where he has taught for almost 30 years. Before joining the faculty, he practiced as a geotechnical engineer for 5 years with Golder Associates Inc. His technical focus is the assessment, evaluation, and management of risk for civil engineering systems. Recent activities include analyzing the performance of offshore platforms and pipelines in Gulf of Mexico hurricanes, performing a review of design and construction for the new Bay Bridge in San Francisco, and managing flooding risks for levees in California, Louisiana, Texas, and Washington. He has been awarded the Norman Medal from the American Society of Civil Engineers and an Outstanding Civilian Service Medal from the United States Army Corps of Engineers. He is a member of the National Academy of Engineering, and he sits on the boards of the Geo-Institute of the American Society of Civil Engineers and the Academy of Geo-Professionals. He holds a B.S., M.S., and Ph.D. in Civil Engineering from the University of Illinois at Urbana-Champaign. He previously served on the National Academies of Sciences, Engineering, and Medicine committee that produced the report Assessment of the Performance of Engineered Waste Containment Barriers.

Sara R. Gosman

Member

Sara R. Gosman is Associate Professor at the University of Arkansas School of Law. Prior to joining the School of Law, she was a lecturer at the University of Michigan Law School and practiced as a water resources attorney at the National Wildlife Federation and as an assistant attorney general in the environmental division of the Michigan Department of Attorney General. Her research explores the ways in which uncertainty about risk creates both challenges and opportunities for policy. In her recent work, she focuses on the governance of risks from the development and transportation of oil and natural gas. She is an expert on the laws governing the risks of energy pipelines, and she has written on rationalism in pipeline safety policy and the treatment of risk in pipeline siting. For 5 years, she has represented the public on the Gas Pipeline Advisory Committee, a federal advisory committee to the Pipeline and Hazardous Materials Safety Administration of the U.S. Department of Transportation. She is the President of the Board of Directors for the Pipeline Safety Trust, a non-profit organization devoted to pipeline safety. She received an A.B. in Religion from Princeton University, a J.D. from Harvard Law School, and an M.P.A. in Public Policy and Administration from the John F. Kennedy School of Government of Harvard University. She previously served on the Transportation Research Board’s committee for the report Safety Regulation for Small LPG Distribution Systems.

Orville D. Harris

Member

Orville D. Harris is President of O.B. Harris, LLC, an independent consultancy specializing in the regulation, engineering, and planning of petroleum liquids pipelines. Prior to this role, he spent 15 years as the Vice President of Longhorn Partners Pipeline, LP, where he was responsible for the engineering, design, construction, and operation of a 700-mile-long pipeline carrying gasoline and diesel fuel from Gulf Coast refineries to El Paso, Texas. For 5 years, he was President of ARCO Transportation Alaska, which owns four pipeline systems in the state, including the Alyeska Pipeline Service Company. During his time as President, he directed the efforts of a team of corrosion engineers in making $400 million of repairs to the Alyeska system, which transports 25 percent of the crude oil from the North Slope of Alaska to the Port of Valdez. Earlier in his career, he held several supervisory and managerial positions at ARCO Pipeline Company, including Manager of the Northern Area, Manager of Products Business, and District Manager for Houston and Midland, Texas. Previously, he served on the Board of Directors of the Association of Oil Pipelines and was a member on the Technical Hazardous Liquid Pipeline Safety Standards Committee of the U.S. Department of Transportation Pipeline and Hazardous Material Safety Administration. He holds a B.S. in Civil Engineering from The University of Texas at Austin and an M.B.A. from Texas Southern University. He served on the National Academies of Sciences, Engineering, and Medicine’s Transportation Research Board committees for the reports Effects of Diluted Bitumen on Crude Oil Transmission Pipelines and Designing Safety Regulations for High-Hazard Industries, as well as the Division on Earth and Life Studies’ committee for the report Spills of Diluted Bitumen from Pipelines: A Comparative Study of Environmental Fate, Effects, and Response.

He is a court-appointed independent third party to ensure compliance by a pipeline operator under a consent decree.

Gary D. Kenney

Member

Gary D. Kenney is a 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 was seconded to and assisted the United Kingdom Health and Safety Executive, the Australian Government's WorkSafe agency, and the British Columbia Safety Authority and Oil and Gas Commission to develop and implement major accident hazard regulations. He holds a B.Sc. in Physics and Mathematics from the University of Akron, an M.Sc. in Environmental Engineering and Business from the University of Cincinnati, and a Ph.D. in Environmental Health from the University of Cincinnati.

He has been retained as a subcontractor for an independent third party (Orville D. Harris) to ensure compliance by a pipeline operator under a judicial consent decree.

Scott A. Marshall

Member

Scott A. Marshall is Pipeline Safety Program Manager for the Virginia State Corporation Commission, which is responsible for the inspection, investigation, and enforcement of regulations for intrastate gas and hazardous liquids pipelines. As a program manager, he leads complex pipeline inspection and investigations, and he has led multiple in-depth fire and explosion investigations. He has implemented inspection plans on interstate gas and hazardous liquids pipelines through agreements with the U.S. Department of Transportation's (DOT's) Pipeline and Hazardous Materials Safety Administration (PHMSA). He has over 23 years in public safety experience, as well as in corrections, law enforcement, fire services, and emergency medical services (EMS). He serves as a senior firefighter II and national registered emergency medical technician in Hanover, Virginia. He is an adjunct instructor for PHMSA, along with various fire and EMS courses. In addition, he serves on a National Fire Protection Association technical committee and is a Certified Fire and Explosion Investigator (CFEI) and a CFEI Instructor. He holds a B.S. in Criminal Justice from Old Dominion University and an A.A.S. in Automotive Technology from Northern Virginia Community College; he is pursuing an M.S. in Emergency Management from Columbia Southern University.

Edward M. Marszal

Member

Edward M. Marszal is President of Kenexis and responsible for instrumented safeguard design basis development and verification/validation projects. At Kenexis, he works on safety instrumented system (SIS) implementation and risk analysis projects for a variety of process plants in diverse worldwide locations. He has 20 years of experience in the design and implementation of engineered safeguards in process industries, including safety instrumented systems, fire and gas detection and suppression systems, alarm systems, and relief systems. He began his career with UOP, a licensor of process units to the petroleum and petrochemical industries, where he performed field verification of control and safety instrumented systems at customer sites. After UOP, he led a number of risk analysis and instrumented safeguard consulting teams that led to the establishment of Kenexis. He has authored numerous technical papers, the International Society for Automation (ISA) book Safety Integrity Level Selection, and the ISA book Security PHA Review. He is a fellow with ISA, was a past ISA Safety Division Director, and participates on ISA standards committees, including a standards panel for safety instrumented systems. He teaches many of the Kenexis and ISA courses on SIS, as well as fire and gas topics, and he provides regular input to the Purdue Process Safety and Assurance Center as a member of its scientific advisory board. He earned his B.S. in Chemical Engineering from The Ohio State University.

His firm has no contracts with pipeline operators, though Kenexis was previously engaged by pipeline operators for the placement of gas detectors at compressor stations. Kenexis does not provide services related to pipeline emergency isolation.

Alison E. Millerick

Member

Alison E. Millerick is a retired natural gas and environmental professional with extensive experience in overseeing and leading natural gas control operations and environmental remediation projects for major energy organizations. Her career path has covered several highly regulated areas within the natural gas utility industry, including environmental, gas supply, and pipeline safety. Before retiring, she was Manager of Gas Control for several natural gas utilities in the Midwest, including the third largest U.S. city's gas utility for 10 years, where she gained experience in the use, design, and operation of remote-controlled and automatic shutoff valves. During this time, she ensured that the proper protocols and training for the control center were followed, developed, and implemented per control room management (CRM) regulations and the organization's CRM Plan. Prior to this role, she held other technical and project management positions in various operational areas of the gas utility, such as environmental affairs, gas supply, and gas control. Throughout her career, she has actively participated in American Gas Association committee work, including the Environmental and Federal Regulatory Committees, as well as serving 2 years as the chair of the Gas Control Committee. She holds a B.S. in General Engineering from the University of Illinois at Urbana-Champaign and an M.S. in Environmental Management from the Illinois Institute of Technology.

She was employed by WEC Energy Group from 1999 to 2021. Her spouse is currently employed by WEC Energy Group and has been working there since 1999.

Cassandra Moody

Member

Cassandra K. Moody is President and Principal Engineer of Time For Change, LLC, a consultancy that delivers solutions in the pipeline sector for integrity management programs, change management during improvement and implementation initiatives, training, and regulatory compliance. Before establishing her consultancy firm, she led teams and managed projects as an operations engineer for Hilcorp Energy Company, a midsize North American pipeline operator. Her experience with automated remote valves comprises environmental impact and hydraulic modeling, engineering design, threat and risk analysis, retrofit or optimization evaluations, associated cost-benefit analysis, and operability considerations for onshore and coastal liquid pipeline systems. In addition, she has performed operations analysis of new and existing natural gas and hazardous liquid pipeline systems and facilities, including analyses for operability optimization, asset reliability, cost consciousness, and regulatory compliance. She was a founding leadership team member of Young Pipeline Professionals, USA (YPP USA), and is active with the Society of Women Engineers–Houston Section (SWE). She is registered with the Texas Board of Professional Engineers and Land Surveyors as a Mechanical Engineer. She earned her B.S. degrees in Biochemistry and Genetics from Texas A&M University and an M.S. in Environmental Engineering from the University of Houston.