



J. KELLY THOMAS, Ph.D.
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Education:	B.S., Nuclear Engineering, Texas A&M University M.S., Nuclear Engineering, Texas A&M University Ph.D., Nuclear Engineering, Texas A&M University
Areas of Practice:	Dr. Thomas' primary technical focus is on the development and application of empirical, analytical, and numerical models for the characterization of flammability and explosion phenomena. He also actively participates in the investigation of accidental industrial explosions, explosion consequence assessments, and testing. He has led explosion consequence assessments for refineries, chemical processing plants, offshore oil production platforms, other industrial facilities, and U.S. Department of Energy (DOE) sites. Dr. Thomas has been involved with testing projects that include large-scale vapor cloud explosions, vented deflagrations, response of equipment to internal explosions, and gas mixing within enclosures. Dr. Thomas has numerous publications and conference presentations related to these topics.
Experience:	<ul style="list-style-type: none">• Active in the development of explosion blast load prediction methods (vapor cloud explosions, vented deflagrations, bursting pressure vessels and dust explosions), including the potential for deflagration-to-detonation transition (DDT). Dr. Thomas also developed numerous methods to calculate the potential for and consequences of gas-phase explosions involving radioactive liquid waste storage transport and processing facilities (flammability criteria, peak deflagration pressure, deflagration source terms, potential for detonation, combustible gas transport, and mixing in storage tanks and process vessels).• Actively engaged in the investigation of accidental explosions at industrial facilities. Dr. Thomas's experience in this area includes field work, supporting analysis and testing, cause and origin investigation, and litigation support.• Developed and taught courses on explosion blast load prediction and explosion source term modeling. Served on several expert panels examining flammable gas issues at the DOE Hanford site, served on a panel that defined methodologies for explosion related phenomena to be used within the DOE complex, and wrote the explosion phenomena section for the DOE Savannah River Site methodology manual. Serves as an alternate on the NFPA Explosion Protection Committee.• While at Savannah River, Dr. Thomas developed specifications for waste tank backup inerting and waste drum purge venting systems; developed operating parameter envelopes used to govern startup and test operations, and participated in the development of plant control and safety strategies, for a radioactive liquid waste processing facilities; participated in the development of vessel ventilation and purge system design modifications to enhance plant safety. He also participated in hazard and risk evaluations for radioactive liquid waste storage, transport and processing facilities, and for hydrogen powered bus and mining vehicles. Dr. Thomas has also managed and participated in projects at Savannah River dealing with the behavior of nuclear reactor materials and reactor systems integrity analysis, including: response of reactor core components to severe accidents, oxidation and emittance of reactor materials, irradiated steel mechanical properties, and reactor system structural integrity.• Led a nuclear fuels and materials research group at Texas A&M prior to beginning work in the safety analysis area. Led projects dealing with: fuel element thermal and mechanical analysis, space reactor design, development of a nitride fuels irradiation performance data base and associated correlations, validation and verification of fuel performance models and codes, space reactor material property correlations, and radioisotopic space power system design.
Professional Chronology:	Texas A&M University (1986-90, Research Associate); Westinghouse Savannah River Company (Senior Engineer, 1990-1995; Principal Engineer, 1995-98); Westinghouse Safety Management Solutions (1998-1999, Principal Engineer); Baker Engineering and Risk Consultants, Inc. (Senior Consultant 1999-2000; Senior Principal Consultant / Manager 2000-present).
Professional Registrations/Certifications:	Certified Fire and Explosion Investigator (CFEI)
Professional Memberships:	American Institute of Chemical Engineers (AIChE); National Fire Protection Association (NFPA); National Association of Fire Investigators (NAFI)
Committee Memberships:	National Fire Protection Association Explosion Protection Committee, Primary (NFPA 67, NFPA 68 and NFPA 69)