



SEAN BERG, Ph.D., P.E. Senior II Engineer

Ph.D. Materials Science and Engineering, University of Houston
M.S. Mechanical Engineering, University of Texas at Austin
B.S. Mechanical Engineering, University of Texas at Austin

Areas of Practice

Dr. Sean Berg works in the BakerRisk® San Antonio office as part of the Investigation and Materials Group. He has a background in both mechanical engineering and metallurgical and materials engineering, and is a registered professional engineer practicing in both disciplines. As a university professor, he has taught university coursework and conducted research in each of these areas of engineering. With 10 years of experience as an engineer, Dr. Berg has expertise in structural and mechanical integrity of fixed and rotating equipment, fitness-for-service assessments, failure analysis of plant and refinery equipment, high pressure high temperature (HPHT) drilling and production systems, and forensic investigation of property damage and determining origin and cause of losses resulting from fire, water, weather, and external forces. Dr. Berg is also a specialist in batteries and battery materials, with in-depth expertise in battery energy storage systems and associated hazards.

Experience

- Dr. Berg has worked as an engineer and consultant in automotive, oil & gas, petrochemical and chemical processing, consumer products, building systems, fossil and nuclear power generation, and renewable energy.
- Dr. Berg has conducted numerous failure analyses and investigations of refinery and plant equipment, support structures, surface and subsea drilling and production equipment, and building mechanical systems. He has characterized various forms of damage in steel, stainless steel, cast iron and ductile iron, nickel-based alloys, aluminum, and copper alloys. He has expertise in API RP 571 – Damage Mechanisms Affecting Fixed Equipment in the Refining Industry.
- Dr. Berg has also characterized ceramic materials and plastic materials including porcelain, PVC, CPVC, PEX, PE, PP-R, and PB products. He has conducted numerous forensic origin and cause investigations in both civil and criminal matters involving property damage and in which loss of life occurred. He has also served as a retained expert for product liability cases, in which manufacturing and material defects, or installation defects, have been alleged.
- Dr. Berg has extensive experience assessing the structural and mechanical integrity of fixed and rotating pressure containing mechanical equipment and assets. He has in-depth expertise in ASME Boiler and Pressure Vessel codes, ASME Piping codes, and ASME/API 579 and has conducted numerous Level 2 and Level 3 FFS assessments for damaged pressure vessels, piping, and tanks utilizing nonlinear elastic perfectly plastic and elastic plastic analysis, explicit fracture mechanics modeling, multi-physics modeling, CFD, and random and acoustic vibration fatigue analysis.
- Dr. Berg also has expertise in HPHT drilling and production equipment. As a program lead technical specialist, he led the analytical and design verification, and materials selection, testing and qualification programs for GE's HPHT drilling product line. He has worked with API SC16 and SC17 as a contributing member during the development of API 17TR8 and the API 16A HPHT Annex, and has served as a third-party reviewer for HPHT subsea production equipment.
- Dr. Berg has expertise in renewable energy technology and systems and has conducted failure investigations of wind turbine damage, solar array and panel damage, and has consulted on battery energy storage system design and operation. Dr. Berg is a subject matter expert in lithium ion batteries and has expertise in battery failure modes and hazards such as thermal runaway, which can cause explosions and fires.

Professional Chronology

Toyota Motor Manufacturing, Engineering Specialist, 2011; Cameron International, Design Engineer, 2011-2013, Engineering Stress Analyst, 2013-2014; GE Oil & Gas, Senior Engineer/Engineering Manager, 2014-2015; Stress Engineering Services, Inc., Associate II, 2015-2017; St. Mary's University, Assistant Professor, 2017-2018, Adjunct Professor, 2018 – Present; EFI Global, Senior Engineer, 2018-2020; Baker Engineering and Risk Consultants, Inc., Senior II Engineer, 2020 – present.

Professional Registrations / Certifications

Registered Professional Engineer (TX, LA, OK, AR, KS, MS, FL, GA, MA, NH, MN, OR)

Professional Memberships

American Society of Mechanical Engineers (ASME)