



**JOSHUA BRUCE-BLACK**  
**Senior II Consultant**  
**BAKER ENGINEERING AND RISK CONSULTANTS, INC.**

---

<b>Education:</b>	<b>M.S. in Mechanical Engineering, University of Texas, Austin, Texas</b> <b>B.S. in Mechanical Engineering, University of Rochester, Rochester, New York</b>
<b>Areas of Practice:</b>	Mr. Bruce-Black works at BakerRisk's Houston office in the Process Safety Group. His experience includes research in gas turbine film cooling, as well as performing Facility Siting Studies, Quantitative Risk Assessments, Water Suitability Assessments, Audits, Process Hazard Analyses, and Hazardous Area Classification Studies for a variety of leading petrochemical and chemical companies in the U.S.
<b>Experience:</b>	<ul style="list-style-type: none"><li>• Extensive experience in performing and managing numerous Facility Siting Studies (FSS) and Quantitative Risk Assessments (QRA) for refineries and petrochemical facilities.</li><li>• Experience in consequence modeling and risk analysis using BakerRisk's dispersion, fire, and blast modeling software tool, SafeSite<sub>3G</sub><sup>®</sup>, to model flammable and toxic dispersions, vapor cloud explosions, jet, and pool fires.</li><li>• Extensive knowledge of different types of risk, industry and specific company risk criteria, and identifying cost-effective risk mitigation measures. Advises clients on risk management techniques and supports clients in developing risk mitigation programs to reduce risk onsite.</li><li>• Leads FSS and QRA trainings focusing on inputs, methodology, analyses, results, and understanding and managing the results for a variety of clients.</li><li>• Performs evaluation of toxic Shelter-in-Place (SIP) buildings using leak tightness testing and develops toxic risk mitigation strategies.</li><li>• Performs Water Suitability Assessments (WSA) for terminals to assess risk along the transit waterway route.</li><li>• Experience in performing Process Safety Management (PSM) compliance audits and Risk Based PSM audits.</li><li>• Participates in Process Hazard Analyses (PHA) and Layer of Protection Analyses (LOPA) and is proficient with computer software packages such as PHAWorks<sup>®</sup> and PHAPro<sup>®</sup>.</li><li>• Experience in performing hazardous area classifications for electrical equipment using BakerRisk's HACTool<sup>®</sup> software based on various codes and regulations (API RP 500, NFPA 497, etc.).</li><li>• Contributes to documentation of accident investigations.</li><li>• Extensive research background with a focus on gas turbine film cooling concentrated on the design and optimization of a slot film cooling geometry with impinging cylindrical holes to allow for improvements in gas turbine efficiency and power output. This research concentrated on the effects of varying the slot depth, slot width, and the pitch between impinging cylindrical holes on the adiabatic effectiveness performance.</li></ul>
<b>Professional Chronology:</b>	Wayne State University, (Research Assistant), Summer 2005; Ford Motor Company (Product Development Intern) Summer 2006; University of Texas at Austin, (Graduate Research Assistant), 2006-2008; Baker Engineering and Risk Consultants, (Senior II Consultant), 2008-present.
<b>Professional Memberships:</b>	National Fire Protection Association
<b>Committee Memberships:</b>	National Fire Protection Association 59A Committee Member (Alternate)
<b>Publications &amp; Conference Presentations:</b>	<i>Proper application of flammability limit data in consequence studies</i> , J.R. Rowley, J.E. Bruce-Black, Presented at IChemE's 23 <sup>rd</sup> Hazard Symposium, Southport UK (Nov 2012).