



**PHILIP J. PARSONS**  
**Senior II Consultant**  
**BAKER ENGINEERING AND RISK CONSULTANTS, INC.**

**B.Eng., Hons in Aeronautical Engineering, University of Salford, UK**

**Education:**

**M.Sc., Hons in Vacuum Engineering, University of Salford, UK**

**Diploma of Professional Studies, University of Salford, UK**

**Areas of Practice:**

Phil Parsons works in the BakerRisk San Antonio office in the Blast Effects Section. He has experience with design, analytical techniques, and hands-on testing. His work at BakerRisk has consisted of performing siting studies and explosion hazard analysis projects in which he has predicted internal and external blast loads from deflagrations and detonations. Blast sources have included high explosives, vapor cloud explosions, dust explosions, bursting pressure vessels, and BLEVEs. His particular area of expertise lies with combustible dust hazards and has performed over 100 dust hazard analyses as well as numerous incident investigations across a wide range of industries all over the world. Mr. Parsons serves on both the NFPA 654 Committee "Standard for the Prevention of Fire and Dust Explosions from the Manufacturing, Processing, and Handling of Combustible Particulate Solids", as well as on the NFPA 652 Committee "Standard on the Fundamentals of Combustible Dust".

**Experience:**

- Significant experience performing regulation compliance inspections of powder handling facilities in various industries including dairy, wood, plastics, and refining. His experience includes leading and performing combustible dust hazard analyses (DHAs) for BakerRisk. Mr. Parsons has substantial experience performing a variety of analysis techniques when performing DHAs, such as HAZOP, LOPA, What-if. Mr. Parsons is well versed on the relevant NFPA dust standards (e.g., NFPA 652, 654, 664, 61, 484, 655), as well as NFPA 68 "Standard on Explosion Protection by Deflagration Venting" and NFPA 69 "Standard on Explosion Prevention Systems". His position on the relevant committees provides a unique position to appropriately interpret and implement these standards.
- Substantial experience with PSM regulations, in particular with performing Process Hazard Analyses. Mr. Parsons has managed numerous facility siting study (FSS) and quantitative risk assessments (QRA) across several industries across the globe, including petroleum refining, pipelines, chemicals and combustible dust handling processes. Mr. Parsons has helped companies in these same industries develop risk management strategies based on cost-benefit analysis.
- Extensive experience in the consequence modeling of vapor cloud explosions and flammable/toxic releases using state of the art dispersion and blast modeling software. Experience evaluating the causes and consequences of hazards in systems handling energetic materials. He has conducted site surveys of industrial operations to evaluate the threat to personnel in occupied areas and has determined the physical effects of accidental explosions including blast overpressures, fragment loadings, and the release of thermal radiation.
- Conducted numerous hazard and risk assessments of systems handling general combustible materials and explosives. He has analyzed hazards in ordnance manufacturing (explosive blending, machining, pressing), and munitions storage. He has also analyzed hazards associated with high pressure tool testing for both pneumatic and hydrostatic tests common to oilfield equipment companies.
- Mr. Parsons has led and been involved in many cause and origin investigations of accidental fires and explosions, including combustible dust explosions, vapor cloud explosions, refinery fires and numerous other incidents.
- Mr. Parsons is experienced in the following tools/software:
  - PHA Pro, PHA Works, PHATool, SafeSite<sub>3G</sub><sup>®</sup>, QRATool<sup>®</sup>, BWTI<sup>®</sup>, FLACS, PVB Tool, VCEC, VCloud, BLASTX, FRANG, SHOCK.

**Professional Chronology:**

GV Instruments, UK, (R&D/Test Engineer, 2005-2006), Baker Engineering and Risk Consultants, Inc. (September 2006 - present).

**Patents:**

UF6 interface for ICP mass spectrometer. UK patent application No. 0520599.2 (filed 11/10/05)  
Dust Accumulation Detector, US Patent Pending (filed 09/09/18)

**Professional Memberships:**

Institute of Mechanical Engineers (IMechE), American Society of Mechanical Engineers (ASME)

**Committee Memberships:**

National Fire Protection Association 654 Committee Member (Primary), National Fire Protection Association 652 Committee Member 652 (Alternate)

**Publications:**

Parsons. P.J., et al., "Guidelines for Vapor Cloud Explosion, Pressure Vessel Burst, BLEVE and Flash Fire Hazards", 2<sup>nd</sup> Edition, Center for Chemical Process Safety, 2010

Parsons. P.J., et al., "Guidelines for Combustible Dust Hazard Analysis", First Edition, Center for Chemical Process Safety, 2017

Parsons. P.J., et al., "Large-Scale Vented Deflagration Tests", HAZARDS26 – 074, IChemE, 2016