



# Process Risk Management and Functional Safety

Within the Energy and Chemicals industry, Paton provides the most integrated **Process Risk Management and Functional Safety** solutions because our team are truly experienced in developing design concept into a fully commissioned safety system that meets the industry standard in effectively managing process risk.

## 1. PHA/HAZOP

- > Facilitate workshop and document findings using PHAPro, PHAWorks or other software

## 2. LOPA

- > Define terms of reference for LOPA
- > Identify tolerable risk criteria based on corporate risk matrix
- > Conduct LOPA workshop using ExSILentia / Mangan SLM
- > Perform SIL selection to identify RRF and other targets for SIF

## 3. Safety Requirements Specification

- > Identify and document SIS and SIF requirements for
  - » hardware design
  - » applications
  - » performance
  - » RRF and SIL targets
  - » testing
  - » maintenance
  - » system operation

## 4. SIF Modelling

- > Complete modelling using ExSILentia, SILSolver, Mangan SLM
- > Recommendations for architecture, device models, testing requirements and overhaul requirements
- > Test procedures for coverage
- > Gap report and TIC Estimate

## Key Capabilities

- > Process Hazard Analysis (PHA) and HAZOP facilitation using PHAPro and PHAWorks
- > Layers of Protection Analysis (LOPA) workshop facilitation
- > Developing Safety Requirements Specification (SRS) for both Safety Instrumented Systems (SIS) and Safety Instrumented Functions (SIF) as per IEC61508/61511
- > SIF Modelling/SIL Verification using ExSILentia and SILSolver
- > Gap analysis and recommendations
- > Specialty applications such as HIPPS and Overspeed Protection
- > Full design and construction capability for closing our gap analysis actions (single point responsibility)