

Overview of Typical Services

Process Engineering Associates, LLC



Process Engineering Associates, LLC (www.ProcessEngr.com) specializes in providing independent services related to chemical engineering, process design, and process safety. We routinely provide the following services.

■ Process Design

- Conceptual / preliminary process design studies (Front End Loading FEL-0 / FEL-1)
- Feasibility studies
- Technology screening / selection support
- Capacity evaluations / revamp studies
- Independent 3rd party process design evaluation
- Utility evaluations
- Detailed process design; FEL-2 / FEL-3 / Pre-FEED (Front End Engineering Design)
- Process design packages Schedule A / BED (Basic Engineering Design)
 - Design basis development
 - Process alternatives technical & economic evaluations
 - Material & Energy Balance (M&EB) development
 - Process Flow Diagram (PFD) development
 - Piping & Instrumentation Diagram (P&ID) development
 - Process controls description / functional controls specifications
 - Preliminary equipment plot plans
 - Equipment duty specifications
 - Preliminary cost estimates (CAPEX and OPEX)
 - Relief valve sizing
 - Detail engineering design process engineering support
 - Process building ventilation design support



■ Process Safety Management

- Conducting Process Hazard Analyses (PHAs)
- HAZOP / What-If
- Conducting PSM compliance audits
- Resolving / implementing PHA recommendations
- Complete PSM / RMP program development
- Process safety information development
- Process safety training courses
- Dust Hazards Analysis (DHA)
- PRD safe atmospheric relief evaluations
- Electrical area classifications (Class I, Div II; etc.)
- Conducting Layer of Protection Analyses (LOPA)
- Development of Cause & Effect diagrams
- Conducting Safety Integrity Level (SIL) selection analyses for Safety Instrumented Systems (SISs)
- SIS design specifications (for new designs)



■ Process Modeling / Simulation (CHEMCAD / AspenPlus / HYSYS / OLI, M-Star CFD, PHAST, etc.)



- Unit operations design
- Piping system hydraulics
- Relief or flare system design / evaluation
- Computational Fluid Dynamics (CFD) modeling of processes
- Plume dispersion modeling

■ Operations Support

- Commissioning plans / startup support / process troubleshooting
- Process evaluation
- Process optimization
- Debottlenecking
- Control systems process support
- Operating procedure development
- Operator and engineering staff training
- On-site process engineering staff augmentation
- PRD evaluations
- Flare System evaluations
- P&ID walkdown and update for 'As-built' drawing development
- Dust hazards engineering reviews
- Process ventilation evaluations

■ Additional Capabilities

- Plant investment process engineering due diligence evaluation
- Process / equipment bid package preparation
- Equipment vendor and EPC bid package support, evaluations, and recommendations
- Owner's process engineer
- Process equipment evaluations
- Acceptance testing witness / approval
- Facility decommissioning plans
- Systems requirements definition and systems engineering support

