

PROCESS SAFETY SERVICES

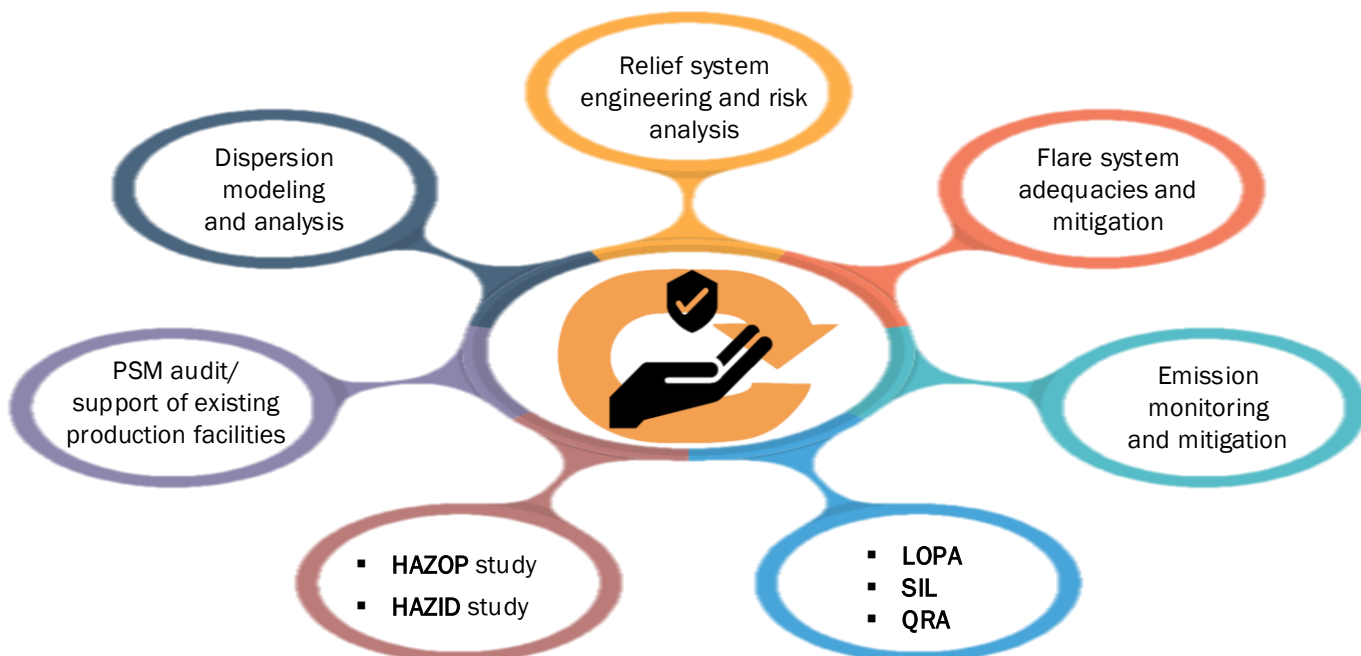
Comprehensive expertise in pressure relief systems



A PROACTIVE APPROACH TO RELIEF SYSTEM ADEQUACY AND DESIGN

Ingenero's process safety division specializes in relief device documentation and compliance, consulting, training, and risk management services. Ingenero's teams have designed and analyzed for compliance over 60,000 relief devices across refineries, petrochemical complexes and specialty chemicals facilities.

Ingenero's Relief System Engineering and Risk Analysis Services



Case Study

The following example is one of Ingenero's many success stories of helping clients mitigate deficiencies in a safe, cost-effective manner.

Challenge: A client company was experiencing significant backpressure issues for relief devices tied to a low-pressure flare header.

- ❑ The processing capacity of various units had been increased over time and a new unit had been tied in.
- ❑ The flare header had not been upgraded.
- ❑ As a result of capacity increases, some devices had increased backpressure above allowable limits.
- ❑ Flare system upgrade was part of client CAPEX plan.

Solution: Added Dynamic simulation analysis to traditional steady state approach to estimate the relief requirement, along with Safety Instrumented Solution.

- ❑ Distillation columns were identified as the major load contributors.
- ❑ Rigorous dynamic analysis encompassing tray inventory, variations in sensible heat, changes in composition, liquid-vapor traffic etc., demonstrated reduction of 10% - 50% vapor load.
- ❑ Need for CAPEX was obviated in numerous cases and reduced to additional instrumentation in others, for CURRENT enhanced capacity.

The table shows reduction in peak load demonstrated using dynamic simulations

Column System	Load estimated by steady state simulations (lb/hr)	Reduction achieved after dynamic simulations (% reduction)
Naptha Stabilizer	~125,000 lb/hr	80%
Stabilizer	~97,000 lb/hr	56%
Stripper and Debutanizer System	~500,000 lb/hr	51%
Naptha Splitter	~101,000 lb/hr	52%

Result/Outcome: Minimal field modifications were required. More than halved planned CAPEX, while adhering to the API standard and RAGAGEP (Recognized and Generally Accepted Good Engineering Practices).

Reach out to Ingenero today and see how our dedicated experts can help you achieve your **process safety and compliance goals!**

Contact us for more information!

USA
+1-713-223-9940

INDIA
+91-22-6176-4500

KSA
+966-54-268-4216

INGENERO
Excellence Through Insight