



PSE OIL & GAS
PRESSURE RELIEF, FLARE & BLOWDOWN
CENTRE OF EXPERTISE

Minimising brittle fracture risks and capital investment

Transient process behaviour during blowdown can lead to extremely low temperatures. Metal temperatures below the ductile range create a real risk of brittle fracture that requires the use of LTCS or stainless steel to mitigate. The predicted extent of these risks can drive enormously expensive materials-of-construction decisions.

This seminar is an extended case study of the entire process design lifecycle of a gas plant. The presentations compare detailed dynamic analysis against conventional approaches for depressurisation system design. The seminar discusses the relevant API Standard requirements and recent changes to the understanding of the fundamental thermodynamic and physical basis that have led to the tightening of those standards. The case shows how analysis early in the project life cycle can facilitate decision making and promote inherently safe design. The case study also highlights the designers' responsibility to assess other process safety scenarios including plant start-up (pressurisation) and localised concerns.

This seminar is one in a series of process safety seminars hosted by PSE's Centre of Expertise in pressure relief, flare and blowdown. As leaders in high accuracy dynamic analysis, PSE seeks to improve understanding of the importance of accurate assessment in Oil & Gas system design.

See psenterprise.com/oil-and-gas for dates and locations.

"Materials exposed to temperatures below the specified minimum design temperature may suffer permanent damage or brittle failure, depending on the mechanical stresses present in areas subjected to low temperatures."

API 521 6ED

WHO SHOULD ATTEND

The seminar will be of use to Oil & Gas engineers, especially those with safety / depressurisation experience or remit, dynamic modelling experts and managers with responsibility for asset and plant integrity.

Sample agenda

The free seminar includes lunch and refreshments.

08:30 Registration

09:00 Session 1 - Importance of correctly designed depressuring systems

- Brittle fracture incidents in processing facilities
- Preventing escalation and loss of containment
- Challenges in depressuring system design
- Current API standards and requirements
- PSE Oil & Gas and gFLARE

09:45 Session 2 - Conventional design workflows

- Overview of conventional methods - process and flare systems
- Fundamentals of depressurisation theory
- Risks and challenges associated with conventional design methodologies
- What is meant by detailed analysis

10:45 Break

11:00 Session 3 - Detailed analysis and project case study

- Project case study - gas processing plant facility
 - Scope for analysis - well inlet, production manifolds, HP/LP interfaces, slugcatchers, compression, gas sweetening
 - Material of construction challenges in design
 - Motivation for detailed analysis
 - Fully coupled process and flare analysis
 - Impact of detailed analysis in early FEED stage
 - Alignment with project engineering workflows
 - FEED stage analysis
 - Screening for low temperature risks
 - Managing data uncertainties
 - Detailed design stage analysis
 - Risks
 - Design and operational mitigations
- Concluding remarks

12:30 Lunch



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