Flare and blowdown assessment

Ensuring your flare and blowdown system is fit for purpose.

Flaring and blowdown is a required practice for safe plant operation during plant deviations. Its purpose is to dispose of waste gases and liquids from process equipment, by separating liquids from the waste gas and then burning those gases in a flare. It is vital that when called upon to operate at a time of emergency, it functions safely as required to prevent equipment damage, fires, explosions and injuries to personnel.

Flare and blowdown systems are usually designed based on particular design assumptions such as, relief cases and loads, flaring scenarios, process conditions and operating envelopes. During the intervening years, equipment and control modifications may have been made to the process plant connected to the flare system to increase production. This could have introduced new tie-ins, new relieving scenarios, loads and conditions into the flare system.

A flare and blowdown system, by its nature, is complex in detail and usually requires specialist analysis. It is therefore essential that the flare and blowdown system is regularly reviewed to ensure that the system integrity, the relieving basis and potential loads placed upon it still fit within the original design envelope.

What we offer
ABB can provide a full evaluation of the flare and blowdown systems performance in accordance with client practices and international standards. A proven 5-stage methodology has been adopted to review the adequacy of the flare and blowdown system:

1. Data gathering and validation
2. Relief and blowdown scenario generation
3. Model development and validation
4. Risks and improvement actions development
5. Assign mitigation actions / further studies

This is a high level screening process to identify any areas of improvement in the flare and blowdown system using a systematic approach. A rigorous model of the flare system is created using specialist software packages, such as Aspen Tech's Flare System Analyser® (FLARENET) and HYSYS®. Results are extracted into a spreadsheet format and created as a high level summary table.
As part of the flare and blowdown system assessment, the key elements considered include:

- Flare system scenario generation
- Flare system modelling and validation
- Flare system process design
- Flare system pipework design check
- Flare knock-out drum capacity check
- Flare stack and tip rating
- Mechanical integrity reviews (optional)

ABB can also provide other supplementary studies in conjunction with the flare and blowdown assessment including:

- Pressure relief and depressurisation study
- Discharge, dispersion and radiation study
- Acoustic and flow induced vibration study
- Ice and hydrate study

ABB can offer customised solutions to ensure your flare and blowdown system is fit for purpose by providing supports and expertise to implement actions that arise from assessment and studies.

Benefits
- Independent, 3rd party assurance that the flare and blowdown system is fit for purpose
- Provide a rigorous model of the flare and blowdown system
- Identify new relief and blowdown scenarios that may not have been considered in the original design during a workshop
- A tailored solution, developed in conjunction with the client to meet corporate procedures and international standards
- A risk based gap analysis report which identifies and priorities improvement areas
- A model that will allow for the management of future adjustments to the flare and blowdown system in an efficient way
- An upfront screening process to avoid unnecessary detailed and costly modification works

Why ABB?
We are a leading pressure relief organisation, having developed and licensed a widely adopted methodology to pressure relief design and management.

We run quarterly IChemE accredited pressure relief courses and have trained many engineers in pressure relief design. We can also tailor the course to meet specific client requirements.

Our consultants have operational heritage which allows them to offer pragmatic judgements and solutions.

We develop a deep knowledge of customer requirements by building a collaborative working relationship.

We have a track record of flare and blowdown studies, having implemented a variety of studies for a number of oil and gas majors. Our previous work has been audited by client experts.

We can call upon a broad range of technical knowledge across our range of services.