OIL AND GAS CASE STUDY - MAJOR OIL AND GAS COMPANY

PSV criticality

Optimise inspection frequencies and reduce maintenance costs.

The client has been operating in one of the world’s leading hydrocarbon provinces since the early 1990’s.

ABB’s client have over 5,800 pressure relief devices, 40% of which are on hazardous duty and all of which need to be inspected and recertified on a regular basis.

The client required a methodology to be developed to:

- Determine the optimum frequency for inspection and recertification of all pressure relief devices
- Introduce standardised inspection intervals for those pressure relief devices performing on the same duty, across similar assets
- Ensure that the inspection frequency was such that pressure relief devices would operate safely on demand

ABB was selected to perform the work due to an excellent reputation and having appropriate experience and technical expertise in the pressure systems and pressure relief areas.

Solution
ABB completed a detailed review of the client’s management document relating to pressure relief devices and updated the methodology and assessment procedure where gaps were identified. The methodology developed also allowed ongoing reviews of the inspection frequencies to be easily carried out, as further inspection and operations data was made available.

The process required the collation and processing of data from all known pressure relief devices across the region, including; fluid, location, governing relief case, inspection history, etc.

The assessment determined a criticality ranking of ‘LOW’, ‘MEDIUM’ or ‘HIGH’ for each pressure relief device, which could then be assigned an appropriate inspection frequency of between 24 and 96 months.
The assessment resulted in (graph above):

- 6% of devices to be decommissioned with immediate maintenance and inspection savings
- 70% of the pressure relief devices being able to have their frequency between inspections increased, 10% of these by as much as 6 years
- 8% of the pressure relief devices requiring their frequency between inspections to be reduced based on safety considerations
- 16% of the pressure relief devices remaining on the same inspection frequencies

In addition to the benefits of being able to increase time between inspections and recertification, a number of processes were highlighted for improvement, such as condition recording and inspection reporting, a key factor in determining optimum inspection frequencies for future operations.

Whilst the savings have not yet been fully quantified, it is easy to recognise that a reduction in the number of inspections and re-certifications being carried out will result in a reduction in the ongoing maintenance spend.

Benefits

- Inspection frequencies optimised - 78% of frequencies changed
- Lower costs, due to the reduced inspection activities taking place
- Compliance with regulations
- Confidence the relief device will activate when required
- Auditable assessment process
- Consistent approach to the inspection of pressure relief devices across the region

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**PSV Criticality Results**

Above: Assessment results.