

Asset criticality and vulnerability study



A leading chemicals company approached ABB Engineering Services for support as they had limited ability to address things themselves.

They had concerns from an asset management perspective about low voltage equipment and pipebridges after a number of learning events and minor issues had occurred.

Background

The customer wanted sound engineering judgement on where to concentrate expensive resources and its money, and was aware that ABB Engineering Services has an international track record for delivery of asset assessments including: criticality and vulnerability assessment, asset health checks, asset life studies and asset life extension studies.

In the last 5 years ABB has conducted over hundreds of studies of this nature supporting its customer's in this manner.

Benefits

- Identified the most significant risks to people, the environment and the business
- Provided an overview of the risk profile of site from the assets being studied
- Identified actions to reduce the risk of failure
- Prioritised the identified actions to ensure the customer achieved the maximum risk reduction from the use of their available resources
- Identified additional integrity issues not previously considered by the customer



Solution

The key objective of the study was to assess the relative risks to people, the environment and the business due to potential failures of two specific groups of assets, namely low voltage equipment and pipebridges. The customer was concerned about the condition of the assets and the potential impact on production, safety and its reputation.

ABB applied its tried and tested approach and methodology and undertook a criticality and vulnerability assessment, elements of its 'pRIME toolkit'. This was supported with BERA (Benefit Effort and Risk Analysis) assessments to optimise and prioritise remedial action. The methodology was tailored to meet the customer's requirements and the characteristics of the assets being assessed. ABB facilitated the study and provided additional functional expertise to supplement those of the customer. The team-based approach enabled the risks to be identified in a rapid manner and practical solutions to be identified to reduce those risks.

Over 200 different actions were identified and recommendations were made accordingly to help the customer avoid production, safety or potential incidents that could damage the company's reputation. The study prioritised the issues and enabled actions to be planned to prevent the issues arising, and where necessary minimise their consequences should they occur.

Whilst the savings have not been quantified ABB are aware of pipebridge collapse incidents that have happened in the past and we know that in one company's case costs in the order of £10M were incurred in rectifying the situation. This did not take into consideration any settlement from a liabilities or insurance perspective. We estimate that in this case study cost savings could be over 100 times the cost of the study.

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