Evergreen HAZOP as an Essential Part of Your PSM System

Graeme Ellis
ABB Consulting
Warrington, UK, +44 7736 026280
graeme.ellis@gb.abb.com

Abstract

Hazard identification and risk assessment studies including HAZID and HAZOP are essential aspects of an effective Process Safety Management system for existing plants, helping to maintain continuous improvement in performance. Effective studies can ensure that potential hazardous events are recognized and that risk reduction measures are still effective and meeting relevant good practice. HAZOP studies are well established as an essential tool during the design of new processes and many companies use early design stage HAZID studies to identify major accident hazards and establish the basis of safety.

The need for revalidation of hazard studies for an operating asset, typically every 5 years to meet company or regulatory requirements, has been recognized as good practice. Many companies in the process industries have undertaken such studies using HAZID, HAZOP or a combination of both. To be effective these risk assessments must involve experienced operations staff and are therefore a major undertaking on an existing plant, tying up key operations personnel. They can also produce an extensive list of recommendations if not properly managed, involving significant resources to ensure these actions are effectively closed out.

This paper will discuss current best practices for retrospective study of process safety hazards on existing plants, based on extensive recent experience in the Oil & Gas, Petrochemicals and Chemicals sectors. The methods available for these studies will be outlined and practical experience will be provided on topics including; planning a study based on an agreed Terms of Reference document, effectively conducting a study including selection of nodes, choice of guidewords, and identifying causes and consequences, recording the study using suitable software, writing effective recommendations, and close out of actions. Using the results of HAZID/HAZOP studies as an input to SIL Determination/LOPA studies will be discussed plus experiences on how documents can be maintained in order to achieve an 'evergreen HAZOP' record for the plant.