Validating Process Safety Assumptions Using Operations Data

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Abstract
As facilities are assessing risk, making recommendations for gap closure, and designing safety instrumented functions (SIFs), assumptions are made to facilitate calculations in the design phase of protection layers used to reduce the likelihood of hazards occurring. Each of these assumptions are made based on design standards, process safety experience, and data supplied by the manufacturers concerning operability and reliability. The purpose of this white paper is to identify key assumptions and replace the assumptions with real-world operations data to prove that the risk may be greater than perceptions based on design. This case study will focus on looking at real functional test intervals verses those applied in the safety integrity level (SIL) calculations. It will also compare unsafe bypasses verses probability of failure on demand (PFD) and the count of initiating causes compared to the frequencies documented in the layer of protection analysis (LOPA).