



1001 Industrial Incidents - BBBB (Buy)

What Went Wrong? and *Still Going Wrong!* by Trevor Kletz

Reviewed by Nick Sands

Many books on functional safety cite various works by Trevor Kletz. Two of his eleven books are a collection of industrial accidents with the names of the companies changed to protect the guilty and highlighting the lessons learned. Or the lessons that should have been learned. *What Went Wrong?* was first published in 1985 and the 4th edition, now 400 pages, came out in 1999. *Still Going Wrong!* is a shorter book with the same message but fewer examples, published in 2003. Kletz has 38 years of experience with Imperial Chemical Industries (ICI) as an engineer, production manager and safety advisor. He has a Doctorate of Science from Loughborough University where he is a visiting research fellow and he is an officer of the Order of the British Empire.

What Went Wrong? is roughly organized by the cause of the accident, not as written in the incident reports but as classified by Kletz. Along the way he also provided critiques on the investigation reports. The categories are things like preparation for maintenance, modifications, human error, labeling, stacks, and leaks. There are also chapters on liquefied flammable gases, tank trucks and cars, vessel entry, pipe and vessel failures, static electricity, and materials of construction. Of most interest to the automation professional may be the chapters on trip testing and computer control.

Each accident is briefly summarized, sometimes in a sentence or two. For the larger incidents such as Flixborough, Bhopal, Mexico City, Seveso and Feyzin there is more detail. It is astonishing how many times a welder has triggered a fire or explosion, sometimes on vessels that only contained water. Many times human error played a role, but often the design made the error inevitable, such as the missteps in many batch operations.

Still Going Wrong! is Kletz's final book. The incidents are mostly new and grouped much the same as before. Kletz takes a higher level view, with more critiques on the quality of the investigation reports. While the incidents are sanitized to some degree, the references provide some clues. It is also easy to identify some incidents such as the Motiva refinery explosion.

These books are not for the weak of heart. The many ways to suck in a tank, blow up a vessel, and burn down a plant are enough to give even seasoned plant engineers nightmares. But as Kletz points out, a high price has already been paid for these lessons. If you work in or design for a manufacturing facility, one of these books should be on your shelf. They are a good Buy (BBBB) at Amazon for \$57 and \$51 respectively.