

potentially hazardous conditions. The author details how

the chemical engineer/designer of safety relief valves ought to obviate as many conceivable improper plant conditions as possible.

The second article, "Plan HAZOP Studies with an Expert System," by Raymond Freeman and others at Monsanto, highlights an expert system to help chemical engineers estimate man-hours and elapsed time needed to do these studies. This will avoid unorganized and poorly run HAZOP reviews.

The third article, "Identify and Rank Toxic Chemicals," by William Bosch, Michigan Department of Public Health, propounds a quantitative way to better management and measurement of potentially hazardous chemicals. Methods to analyze toxic, flammable, and explosive chemicals in an unbiased manner can always stand improvement. This replaces guesswork with hard data, culminating in realistic "threshold" levels, "concern" levels, and "hazard indices."