Managing Industrial Risk – Having a Tested and Proven System to Prevent and Assess Risk

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ABSTRACT

When an industrial facility is constructed and operated, hazards that would not otherwise be present are introduced. Society, i.e. owners, insurance bodies, governmental agencies, workers, third parties generally accept that the benefits of these hazards far outweigh the increased risk.

The prevention of loss and assessment of risk implies that industrial risk is something that should be managed. In order to manage something, it must be thoroughly understood.

While we will most likely never be able to accurately predict which risks which lead to a loss, we can, however, pick out what we believe to be important factors that may be risk contributors resulting in conditions leading to a loss. Analyzing these factors and their interactions provides insight into the relative potential for, its magnitude, and the frequency for a loss.

Risk assessment doesn't have to be a calculation-intensive exercise in probabilistic theory. Such calculations are, after all, based upon probabilities that are of questionable benefit in rare-occurrence scenarios. A false precision is often assigned to numbers that are the result of detailed calculations. In reality, the margin of uncertainty is quite high because of the large number of assumptions required in such analyses.

The approach we use in our risk assessments is to deviate from strict scientific procedure to build a risk model. In many situations, some risk aspects are based as much upon intuition as upon hard evidence. Rather than being seen as detraction, this approach accesses an experts experience and strengthens the risk management process.

Some relatively "easy" ways exist to improve the risk picture/profile. Inexpensive, painless activities to implement programs and inject a discipline appear throughout a risk analysis. Risk analysis has been around a since the beginning of time. Today with the advent of computer system resources, focusing on specific aspects of risk and taking credit for each portion of the analysis via a systematic scoring system is relatively easy to achieve.

The risk assessment methodology provided by companies such as Stephen Heller & Associates is no longer the ideas and practices of one group or even one company. It is reflective of the practice of many companies, as well as the ideas and expertise of
academia and government regulators. The new user of these methodologies shall find many ideas directly applicable to his or her needs. The user will find some ideas may need slight modification to accurately reflect a specific situation. An attractive feature of assessment and risk modeling, is that to a large extend they can be customized to be a useful tool.

Data on industrial risk and failures are still insufficient and evolving to perform a thorough risk assessment using purely statistical concepts. The practical advantages to deviating from strict data-driven protocol seem to outweigh the drawbacks. Industry failure data must often come at a high cost when a loss happens. We can benefit from this unfortunate acquisition of data by refining our models to incorporate the new information. Specifically, the item weightings should reflect our best estimation of importance of the item in terms of its contribution to the risk picture; the more probable and more consequential items should have later impact on the scoring of the risk assessment.

The discussion shall demonstrate, by practical example, that historical data, working experience, and common sense can be combined into a flexible risk management tool. A "tool" is the ultimate objective, here. The most sophisticated analysis that is studied once and then filed away is at best only a means to satisfy an intellectual curiosity. An easy-to-understand, easy-to-modify system of risk assessment can become a part of everyday design, business, and operations risk decision.

The discussion shall provide explanations to describe the reasoning behind the inclusion of various risk contributors and risk reducers. By way of these explanations, the non-industrial professional can obtain a feel for many aspects of risk as it relates to industrial design, operation, and maintenance. It is hoped that such understanding will help in communications between Highly Protected Risk/Energy/Utilities/Petrochemical/Chemical/Refining/Mining insured, regulators, insurers, and other people with interests in risk and its related topics.

Suggested Sessions: Learning from incidents/Risk Assessment/or Management of Process Safety