

## Safety Corner

### What are the Seven Sins of a Risk Assessment?

In the last issue we have discussed the general characteristics one can find in a “good” and a “bad” risk assessment. In this issue, we will highlight some of the more egregious errors found in quantitative risk assessments (QRA). These deadly sins are to be avoided at all costs before laymen losing respect to the application of QRA.

1. Lack of a clear defined scope. A clear defined scope can dictate the complexity and details, and also set the course of a QRA.
2. Calling a hazard assessment a quantitative risk assessment. Analyses using risk matrix to assign risk classes to hazard scenarios, or analyses that do not provide summation of risks are not QRA and should only be called hazard assessments. A QRA must be able to provide the total risk of a situation.
3. Using generic data without data specialisation. A QRA uses generic data without any system specific data can only reflect the risk of a generic situation but never the risk of the systems being analysed.
4. Terminology confusion. We are often bombarded with terms used by analysts who insist they mean different things, and have also seen many practitioners start to make up their own terms and methods, although they are merely a slightly modification over exiting methods.
5. Overly complex (or simplistic) risk assessment. If you can assess the risk with proven methods, there is really no need to make things too complicated. On the other hand, one must also not to conduct an overly simplistic assessment of a complex situation.
6. Incorrect application of tools and techniques. One general mistake is the misuse of tools due to the lack of an understanding of the fundamentals. For instance, fault tree is based on probability theory and therefore, one cannot propagate frequency terms (which have units) in a fault tree without special treatment.
7. Making QRA the end game. A QRA is a snap shot of a situation, and unless conducted periodically or actively (as in the case of risk monitors), the risk may change with time and input conditions.

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