

Safety Corner

What is a SIRA?

The hazard identification process in a risk assessment often identifies safety issues that need to be risk assessed to determine whether control measures are required to maintain risk at an acceptable level.

One of the major limitations of the classic risk matrix approach in using the *severity x likelihood* formula is its inability to explicitly account for the risk control barriers. Typically, the analyst needs to first assess the risk considering existing barriers but without any specific way to quantify their effectiveness, and then make another assessment of the residual risk, considering new or additional barriers.

Instead of the old *severity x likelihood* formula, the “safety issue risk assessment” (SIRA) is a new technique using an improved formula to assess risk according to four factors:

- Frequency/probability of the triggering event
- Effectiveness of the avoidance barriers
- Effectiveness of the recovery barriers
- Severity of the accident outcome

Using SIRA, once a safety issue has been defined, the analyst would create the applicable accident scenario(s) which would then be risk assessed. In the assessment, each of the four factors is given a qualitative or quantitative value and the result is compared to risk tolerability criteria. As the output of SIRA is risk numbers, one can sum up the risk values of a batch of events and state the cumulative risk value as the total risk for that batch of events. This is something that the classic risk matrix method cannot do.

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