

What are the Considerations when Defining the Scope of a Risk Assessment?

As discussed in previous articles, one of the seven sins in conducting a risk assessment is the lack of a clear defined scope. This can be avoided by carefully considering the following when defining the scope of a risk assessment:

- The type of risk to be analysed; i.e., the “Risk of What?”
- The risk receptor (or target) to be safeguarded against the risk; i.e., the “Risk to What?”
- The source of harm; i.e., the “Risk from What?”

Defining “Risk of What” is to understand the nature of risks being assessed in order to ascertain the seriousness of harm to be investigated. For example, assessing manual handling risk in a general office environment would require a totally different set of expertise and resources comparing to a risk assessment for airplane crash.

When considering the impact of safety risks to personnel, “Risk to What” usually means risk “to whom.” In defining the scope of an assessment to personnel safety, one must define the individuals or groups of people that form the subject (or victim) of such risk assessment. For engineering systems, we need to define the operation in focus, the systems involved, the end state of the assessment, etc. For example, a “level-1” QRA for nuclear power plant would analyse the accident pathways to core melt, while a “level-2” QRA would analyse the scenarios for containment breach following a core melt and a “level-3” QRA would investigate the impact of radioactive fallout to people following a containment breach. Each type of QRA looks for a different “target” and would require a different set of expertise and resources.

In addressing “Risk from What,” one would look for the source term of all foreseeable hazards that are associated with “Risk of What” and can have an impact to the “Risk to What/Whom.” The source term would help determine the engineering disciplines required to support the risk assessment. A risk assessment investigating the risk of system failure would be different from that for earthquake, fire, occupational safety, etc.

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