



QUANTIFIED RISK ASSESSMENT

QUANTIFIED RISK ASSESSMENT (QRA)

Quantified Risk Assessment (QRA) is a means of identifying potential hazards to an asset, its plant, process and personnel and assessing their likelihood of occurrence and the subsequent consequences.

In the UK offshore oil and gas industry, an operator is required to submit to the regulatory body a Safety Case for each of its installations in UK waters. Safety Cases have also been adopted into legislation in many other countries and similar systems also exist in other industries (for example, Safety Plans for onshore plant). QRA is a key component of an operator's Safety Case.



WIDER APPLICATIONS OF QRA

Traditionally, a QRA will be completed in time for the submission of the Safety Case and then be 'left on the shelf' until re-submission is required. In general, the results are not widely understood or communicated. The data is collected simply to satisfy the regulators, and is not used for any other purpose.

At RMRI, however, we recognise the wider importance of QRA data to the effective through-life management of a large-scale asset. And so we promote an integrated approach, preparing a QRA at the concept design stage of a project, where possible, and refining it as more data becomes available.

The results are presented in event tree format, as a Risk Profile of the asset - a record of the detrimental events associated with the asset, along with their probable frequency and consequences.

If data is structured in such a way that it is auditable and can be easily communicated to decision-makers, the design can be developed in conjunction with the QRA, rather than in isolation. Thus cost-effective decision-making is facilitated from the earliest stages of development of a project.

As the project progresses, the data can be updated, so that the 'Risk Profile' represents the current state of the asset and, throughout the life of the asset, decisions can be made on the basis of the best available information.

RMRI have worked on many QRA studies and Safety Cases, and it is through work such as this that we have developed and implemented concepts and tools for use in wider risk-based decision-making.

