



# RISK ASSESSMENTS

*Improving decision making by understanding risk.*

In any management system, risk management is a fundamental requirement for sustainable asset management. In the field of asset management decision making, it facilitates the constant and evolving trade-off between performance, cost and risk. An organisation needs to understand its tolerance to risk in terms of safety, environmental, financial, reputational and performance risk to define criticality and to inform the decision making process.

Risk assessment is the overall process of risk identification, risk analysis and risk evaluation. Risk assessment provides decision makers and responsible parties with an improved understanding of risks that could affect achievement of objectives, and the adequacy and effectiveness of controls already in place. This provides a basis for decisions about the most appropriate approach to be used to treat the risks. The output of risk assessment is an input to the decision-making processes of the organisation.

The manner in which this process is applied is dependent, not only in the context of the risk management process, but also on the methods and techniques used to carry out the risk assessment. At Bureau Veritas we make use of the following methods and techniques to facilitate these risk assessments:

- Hazard identification and risk assessment (HIRA);
- Hazard identification (HAZID);
- Hazard analysis and critical control points (HACCP);
- Hazard and operability study (HAZOP);
- Structured "What-if" Technique (SWIFT);
- Scenario analysis;
- Failure modes and effects analysis (FMEA) and failure modes and effects and criticality analysis (FMECA);
- Fault tree analysis (FTA);
- Layers of protection analysis (LOPA);
- Bow tie analysis; and
- Reliability centred maintenance (RCM).



## Key benefits

Risk assessment can be applied at all stages of the lifecycle and is usually applied many times with different levels of detail to assist in the decisions that need to be made at each lifecycle phase. By conducting risk assessments organisations can:

- Recognise and control the hazards;
- Understand the criticality of their risks;
- Improve their decision making processes;
- Create awareness among employees and use it as a training tool;
- Reduce incidents in the workplace; and
- Save costs by being proactive instead of reactive.

## Related services

- Process safety management (PSM)
- Asset maintenance strategies and plans
- Risk-based inspection (RBI)
- Emergency planning and response
- Pipeline integrity management systems (PIMS)
- Reliability studies

