



Striking the right balance of risk

Asset risk analysis for the water industry

We help clients meet the challenge of achieving an optimal balance between risk, cost and service.

Successful asset management requires an assessment of risk to enable asset deterioration and failure consequences to be pro-actively managed. It establishes asset failure modes and impacts on service and thereby provides a framework for investment planning. The challenge is to achieve an optimal balance between risk, cost and service.

To manage risks effectively both the probability and the impact of failure need to be understood and quantified. Intervention options would then be developed to remove or mitigate risks. Interventions are planned in a priority order appropriate to the likelihood of asset failure, the criticality of the asset and the impact on serviceability.

Our services

Halcrow's risk analysis services include a full range of risk assessment procedures and complementary procedures, including cost-benefit analysis and whole-life costing, and carbon accounting.

Our clients benefit from integrated solutions, achieved using a suite of complementary asset management tools and procedures using risk appraisal methodology, which is all PAS55 compliant.

Risk assessment data and procedures can be incorporated into numerous processes, including:

- asset management planning
- asset information management
- asset management strategy, policy or regimes
- good practice benchmarking
- asset condition and performance assessment
- asset deterioration modelling
- asset valuation
- life-cycle costing of maintenance or works
- asset or service risk management

Risk analysis techniques

To understand the probability of failure, we combine techniques to provide an overview of risks:

- cohort analysis
- condition assessment – pipe deterioration models
- site survey
- sampling and statistical extrapolation
- failure modes effects analysis – probability assessment

The impact of any failure can be assessed through:

- hydraulic network analysis
- environmental modelling
- flooding assessments and modelling
- failure modes effects analysis

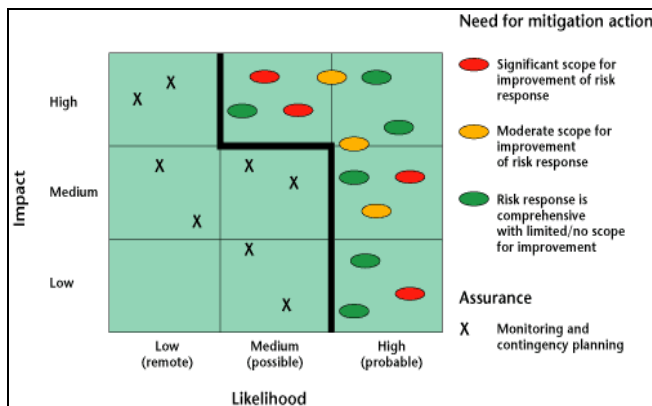
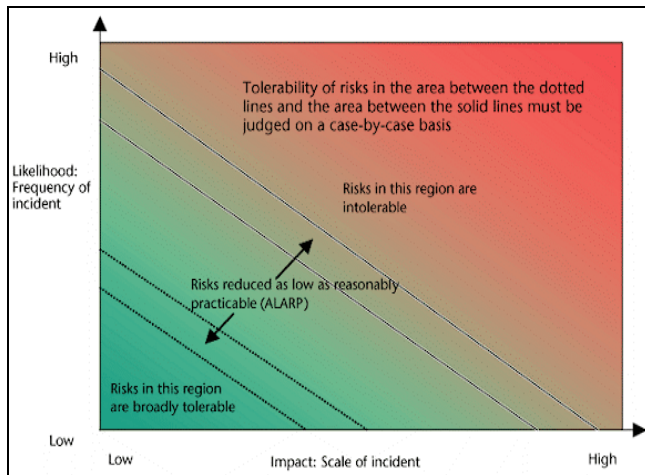
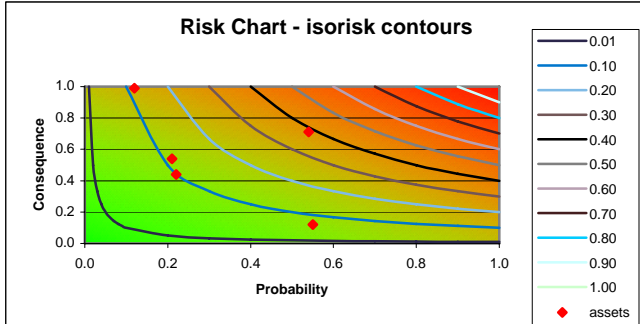
A risk score can be estimated:

Risk = total consequence x probability of failure

Results assessment tools

Tools used for plotting risk scores and prioritising interventions include:

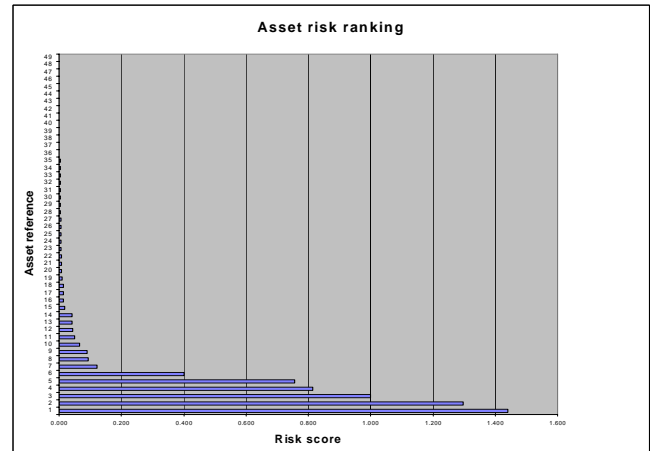
- score cards
- risk grids, matrices or heat maps
- risk contours



Interventions

We develop options to remove or mitigate risks.

Interventions are planned in priority order appropriate to the likelihood of asset failure, how critical the asset is, and the effect on service.



Delivering value – case study examples

- development of pipeline investment plans for Hillsborough County, Tampa
- development of targeting approach for maintenance of building assets for Thames Water
- asset resilience to flood hazards: development of an analytical framework for Ofwat

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