



Risk Management

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The Formula

Residual Risk = (Consequence x Probability) – Mitigating Actions

Perspective

Consequence-bias

Versus

Risk/Reward

Enterprise Risk:

- ✓ This risk describes a type of event or occurrence that may severely affect the corporate enterprise itself, such as the following:
 - existential (business closure or bankruptcy)
 - resource (financial loss, including loss of an operating unit)
 - products and services (generation loss or extended shutdown)
 - customer (public, environmental, reputational)

Operational Risk:

- ✓ This risk describes the on-going, inherent risks associated with the operation of commercial nuclear power plants. The following conditions can result from inadequate management of operational risk:
 - core damage or large early release
 - events (transients, scrams, trips, fire)
 - plant or equipment damage (component failure)
 - configuration (eroded operational or safety margin)
 - operability (eroded operational or safety margin)
 - personnel (radiological, injuries)

Project Risk:

- ✓ This risk describes an undesirable event or condition related to a project that would adversely affect a project objective or that would result in other undesirable outcomes for any of the following elements:
 - stakeholder (customer dissatisfaction)
 - regulatory (loss of margin)
 - technology (unavailability or failure)
 - execution (schedule and budget)

Risk Identification

- ✓ Individuals take personal responsibility for challenging the risk involved in both routine and infrequently performed activities.
- ✓ Individuals demonstrate a bias toward identifying adverse risk conditions versus justifying why risk does not exist or rationalizing why it can be discounted.
- ✓ Individuals have a mindset that unnecessary risk is unacceptable and recognize that consequences need to be evaluated, even if the probability of occurrence is low.

Vulnerabilities

✓ Single Point Vulnerability

- A critical component whose failure alone has the potential to produce a significant (>20%) plant power transient or during power operations require a unit derate of > 20% to address the condition.

✓ Latent Vulnerability

- A condition that is not easily detected or is a hidden feature that can make the station susceptible to an unacceptable consequence from a component failure that normally would not cause the consequence.

Risk Assessment

- ✓ Decision-making reflects an intolerance for unacceptable end-states.
- ✓ Consequences must be assessed from the perspective of external stakeholders.
- ✓ First-of-a-kind or first-in-a-while technologies and methods have specific mitigation strategies.
- ✓ Mitigation strategies are applied to avoid an unacceptable consequence.

Risk Mitigation

- ✓ Risk is eliminated or minimized through preemptive actions based on a well-defined understanding of event significance and consequence.
- ✓ Residual risk is mitigated to acceptable levels using compensatory measures.

Risk Mitigation in Configuration Management

- ✓ Margins
- ✓ Redundancy
- ✓ Contingency
- ✓ Competence
- ✓ Thoroughness

Breakout Session

- ✓ Discussion of specific examples of how Configuration Management mitigates risk