

Risk Informed Engineering Programs 10 CFR 50.69

A new era for nuclear power: A strategic path to reduce O&M costs while maintaining high standards of safety and plant reliability

Challenge

As the nuclear industry faces escalating economic challenges, there are increasing drivers to reduce operating costs while maintaining exceptional nuclear safety. The industry has new opportunities to restructure operating practices to improve cost-efficiency in a variety of ways.

Industry Efficiency Bulletins call for the licensees to implement 10 CFR 50.69, risk-informed categorization and treatment of structures, systems and components for nuclear power reactors, a voluntary rule that:

- Increases focus on issues most important to nuclear safety
- Improves and expands operational flexibility through improved engineering programs
- Increases flexibility in work activity strategies to reduce costs
- Improves work maintenance strategies to shorten outage durations
- Provides long-term reductions in O&M costs

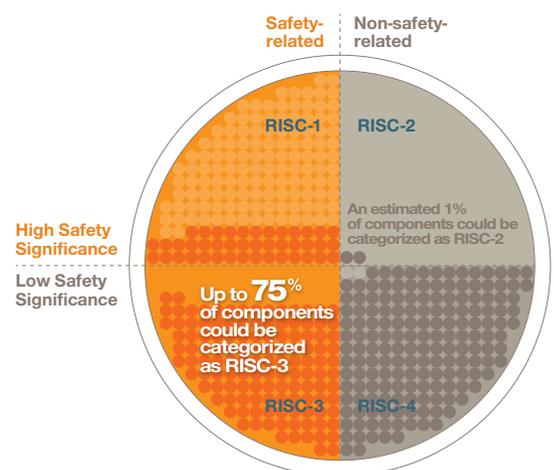
10 CFR 50.69 provides a risk-informed process, approved by the U.S. Nuclear Regulatory Commission, that allows a utility to establish the safety/risk significance (high or low) for individual plant components and augment traditional safety related/non-safety related designations. This methodology uses risk insights from a plant's probabilistic risk assessment (PRA) as well as engineering, operational, and other insights to differentiate between plant components based on their importance to the nuclear safety of the plant. Components are placed into Risk Informed Safety Categories (RISC) merging their traditional safety/non-safety related designation with their safety significance to the plant. Safety-related components determined to be of low safety significance are exempted from the requirements of 12 regulatory special treatment programs including:

- Appendix B
- Maintenance Rule (10 CFR 50.65)
- Local leak rate testing
- Environmental qualifications
- In-service testing and inspection

**Your performance
is our everyday commitment**

10 CFR 50.69

Risk Informed Engineering Programs



Benefit of Implementing 10 CFR 50.69 — improved safety focus, regulatory burden reduction and reducing the number of items procured in accordance with Appendix B by up to 75 percent.

Customer benefits

The Framatome/CRG team assists plants with all aspects of implementation of 10 CFR 50.69 from start to completion. Utilities will also develop alternative treatments for low safety significance equipment which provide benefits such as:

- Low safety significant, safety-related equipment can be purchased as commercial grade parts
- Reduced reporting requirements for maintenance and other activities
- Increased flexibility and “tool pouch” maintenance options
- Reduced inspection and testing frequencies
- Reallocation of site resources

Solution

Framatome has teamed with C.R. Grantom P.E. & Associates, LLC (CRG) to provide services implementing Risk Informed Engineering Programs (10 CFR 50.69) to the nuclear industry. This team combines Rick Grantom and his staff's unparalleled experience implementing all aspects of 10 CFR 50.69, with the engineering expertise and diverse capabilities of Framatome, to provide a full-scope solution. Our team has the subject matter experts to support all phases of implementation including licensing, categorization and alternative treatment services. Our experienced approach to implementation of 10 CFR 50.69 is focused on providing benefits well in advance of regulatory approval, reducing the timeline for return on investment and maximizing the benefit of information developed for 50.69 across a site.

The Framatome/CRG team is also developing innovative solutions for procurement, testing, inspection, environmental and modification challenges using technologies that were not accessible or available in the past.

The Framatome/CRG Team has:

- Experience in all aspects of 10 CFR 50.69 implementation from its initial development and proof of concept, through the pilot and current implementation efforts. Our team's experts have been immersed in assisting with 50.69 for more than a decade.
- The most experience in the industry, having categorized more than 100 systems and over 75,000 components including:
 - Mechanical/fluid systems
 - Electrical systems
 - I&C systems
 - HVAC systems
 - BOP systems
- Dedicated licensing, operations, systems, and procurement groups with knowledgeable staff trained in 10 CFR 50.69
- The engineering bench strength and capabilities of a full-service supplier to the nuclear industry with experience establishing reasonable confidence to support alternative treatments
- Complete supply chain capabilities, to provide industrial grade procurement solutions for safety-related components determined to be of low safety significance, including developing reasonable confidence justifications to provide immediate 50.69 procurements solutions.

With the Framatome/CRG Team, return on investment in 10 CFR 50.69 starts when the first system is categorized and continues for the life of the plant.

Critical Capabilities	Framatome/CRG Team
Business Case Development	✓
Change Management	✓
Planning and Strategy	✓
System Prioritization	✓
PRA Technical Adequacy	✓
External Event Validation/Verification	✓
Fire/Seismic Safe Shutdown List Verification	✓
License Amendment Request Development	✓
NRC Interaction	✓
50.69 Procedure Development	✓
50.69 Training	✓
System Categorization <ul style="list-style-type: none"> • Probabilistic Risk Evaluation • Deterministic Risk Evaluation • Passive Risk Evaluation 	✓ ✓ ✓
Integrated Decision-Making Panel (IDP)	✓
Alternative Treatment Implementation plan (ATIP)	✓
De-scoping of Low Safety Significant SSCs	✓
Development of Alternative Treatments <ul style="list-style-type: none"> • Procurement • Environmental Qualification (EQ) • Maintenance Rule • Local Leak Rate Testing (LLRT) • In-Service Inspection • In-Service Testing 	✓ ✓ ✓ ✓ ✓ ✓
Procurement Reasonable Confidence Justifications	✓
Plant Specific 50.69 Procurement Opportunities	✓

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