

NRC Risk Informed Steering Committee (RISC)

Since the advent of the Probabilistic Risk Assessment (PRA) Policy Statement in 1995, the NRC has steadily shifted from having purely deterministic regulatory processes to those which are risk-informed.

A risk-informed process considers defense in depth and safety margins along with insights derived from quantitative PRAs. Unlike deterministic design basis accident analyses, which require conservative assumptions, PRAs rely on best estimate data and assumptions. Over the years, several risk-informed initiatives have been successfully undertaken – with more proposed as a result of the regulatory challenges we face in this post-Fukushima era. Examples of these are risk-informed in-service inspection, risk-informed allowed outage times, risk-informed surveillance intervals, and the risk-informed, performance based voluntary initiative for fire protection (NFPA-805).

Despite the advancement of risk-informed initiatives, more work needs to be done to continue to advance risk-informed decision-making within the NRC. For example, there are still areas where different perspectives exist between the stakeholders (the NRC, industry, and the public) on how to address issues which arose during the implementation of risk-informed regulation.

The NRC's Risk-Informed Steering Committee (RISC) is an NRC senior management committee that will provide strategic direction to the NRC staff to advance the use of risk-informed decision-making in licensing, oversight, rulemaking, and other regulatory areas, consistent with the Commission's PRA Policy Statement. The industry RISC consists of senior executives from the industry.

In 2014, the NRC and industry each agreed to form two working groups to focus on developing guidance in two selected areas related to PRA. The two areas of focus were "Technical Adequacy of PRA Methods" and "Treatment of Uncertainty in Risk-Informed Decision-Making" (RIDM).

Under the Working Group (WG) on Treatment of Uncertainty in RIDM, the focus is on the challenges involved in the more practical consideration of uncertainty in risk-informed processes that utilize PRA modeling results. Recent experiences indicate that practical applications can be hindered by: (a) different levels of detail and assumptions made in the development of the supporting PRA models, and (b) the lack of sufficient guidance to address important issues, including decision making in the presence of very large, irreducible uncertainties, and (c) the implications of the differentiated treatment of uncertainty when considering the risk profile from multiple hazards. The industry WG drafted a white paper that addressed the following objectives:

- Identify the specific challenges for not being able to appropriately treat uncertainties in current risk-informed applications
- Evaluate current approaches to addressing uncertainties in risk-informed decision-making applications and identify any gaps that need to be resolved
- Propose enhancements to the existing framework for addressing the practical aspects of the treatment of uncertainty in risk-informed decision-making applications
- Identify potential education mechanisms (e.g., training, communications), for both PRA practitioners and broader audiences, with respect to the treatment of uncertainty

The NRC's WG held multiple public meetings with the industry WG to provide comments on the white paper and its recommendations. The NRC WG has issued a memo to the NRC RISC with recommended actions to be taken by the appropriate line organization to close the gaps identified.

The NRC's regulatory position on PRA technical adequacy for licensing applications is documented in Regulatory Guide (RG) 1.200. However, the NRC and industry have expressed concerns regarding the sufficiency of the process for new methods, while the industry has encountered frustration when attempting to pursue innovative approaches. Therefore, a process for the use of new methods in risk-informed regulatory applications needs to be developed. In addition, there have been disagreements, in some cases, regarding the appropriate level of staff review of the PRA supporting the licensing applications. The peer review process currently laid out in RG 1.200 and supporting NRC and industry documents may need clarification and/or enhancement to realize the full value of the PRA standards and peer reviews, and to reduce unnecessary burden to licensees and the NRC. The industry PRA Technical Adequacy WG has drafted a white paper that addressed the following objectives:

- Develop a process suitable for making new methods available for risk-informed regulatory applications
- Improve process for documentation and closure of Peer Review Facts and Observations (F&Os)
- Evaluate any additional gaps in current peer review process

The NRC PRA Technical Adequacy WG held multiple public meetings to discuss the white paper and provide comments on the recommended actions. The WG will draft a memo to the NRC RISC recommending actions that, if approved, will be taken by the appropriate line organization.