



# **Risk-Informed and Performance-Based Regulations for Nuclear Power Plants**

**Policy Statement**

**June 2004**

The American Nuclear Society (ANS) endorses the use of risk-informed and performance-based regulations for the nuclear industry. Risk-informed regulations use results and insights from probabilistic risk assessments to focus safety resources on the most risk-significant issues, thereby achieving an increase in safety while simultaneously reducing unnecessary regulatory burden produced by deterministic regulations. Performance-based regulations specify performance requirements rather than specifying process requirements. Together these regulatory characteristics improve the safety of nuclear power plants.

Probabilistic risk assessments have the following characteristics:

- explicitly consider a broad set of potential challenges to safety;
- logically prioritize these challenges;
- consider a wide range of options to mitigate these challenges;
- assess sensitivity of results to key assumptions;
- identify and potentially quantify uncertainties in results.

Performance requirements have the following characteristics:

- based on measurable, quantifiable parameters that are directly related to safety;
- timing of measurements is specified;
- numerical performance criteria are set for each parameter;
- corrective actions are required to be taken if performance criteria are not met;
- performance trends are monitored;
- performance criteria and/or corrective actions are adjusted based on performance trends.

These characteristics produce a logical, coherent basis for regulation of nuclear power plants.

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The American Nuclear Society, founded in 1954, is a not-for-profit scientific and educational society of more than 11,000 scientists, engineers, and educators from universities, government and private laboratories, and industry.

Position Statements are the considered opinions and judgments of the Society in matters related to nuclear science and technology. They are intended to provide an objective basis for weighing the facts in reaching decisions on important national issues.

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