



PR 50 and 53  
(71FR26267)

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August 25, 2006

Secretary, U. S. Nuclear Regulatory Commission  
Washington, D.C. 20555-0001

Attention: Rulemakings and Adjudications Staff

Subject: Comments on Advanced Notice of Public Rulemaking to Make 10 CFR 50  
Requirements Risk-Informed and Performance-Based

Reference: Proposed Rules, Federal Register Volume 71, Number 86, Thursday, May 4, 2006.

Dear Secretary:

ASME believes that the U.S. Nuclear Regulatory Commission should move forward with developing a new risk-informed performance-based Part 53 as an alternative to 10 CFR Part 50 for licensing future nuclear power plants. This approach is necessary to provide a consistent basis for licensing diverse advanced reactor designs to comparable safety criteria.

Current regulatory process and deterministic codes and standards design rules have provided an acceptable level of safety for many years, but the reliability of a component designed to existing regulations, codes and standards can vary. Development and implementation of risk-informed, performance-based regulatory processes coupled with development and implementation of risk-informed and probabilistic design methodologies will provide greater consistency in meeting target levels of reliability that are dependent on specific consequences of failure.

ASME provides the following general comments on the proposed Part 53. These comments are primarily based on the April 2006 version of the working draft report of the technology neutral framework and an initial review of the revised working draft recently issued on August 1, 2006.

1. The U.S. Nuclear Regulatory Commission (NRC) should maintain a high priority on supporting the licensing and certifications of the next generation of light water reactors (LWRs). Development of the new Part 53 should not detract from development of standards and timely, technically sound decisions needed to support the nuclear steam supply system vendors and nuclear plant owners who are committed to building the next fleet of plants.
2. The NRC should allow the use of the existing 10 CFR 50.69 risk-informed regulations and related codes & standards to be applied, where appropriate, to designs of the next generation of advanced LWRs within the existing licensing process.

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3. Although these proposed new rules are likely to be reactor technology neutral, applicability of the new Part 53 should be focused on the early Gen IV designs such as the High Temperature Gas Cooled Reactors and should be bench marked against the safety levels of LWRs.
4. A phased approach to development of the new Part 53 should be considered. Development of a plan that integrates Part 53 development activities with on-going licensing and certification activities over a multi-year timeline is recommended. The plan should be prioritized to support industry and regulatory needs.
5. When planning development of the new regulations, consideration should be given to the fact that there are limited experienced nuclear industry human resources available to support development of this new Part 53 in parallel with (1) construction, certification and licensing of new LWR plants and (2) development of Gen IV designs while continuing to support current operating reactor needs.
6. Planning (per comment 4, above) and development of the new Part 53 should address the need for development of detailed design processes that integrate the concept of an evolving probabilistic risk assessment (PRA) and risk-informed probabilistic design methodologies with traditional deterministic design approaches. These detailed design processes are needed to implement the conceptual processes established in the draft technology neutral framework.
7. Planning (per comment 4, above) and development of the new Part 53, should consider that broad changes to the ASME Boiler and Pressure Vessel (B&PV) Code and other nuclear codes and standards that will be needed. For example, integration of the ASME Section III B&PV Code for construction with the ASME Section XI B&PV Code for in-service inspection, the ASME Operation & Maintenance Code for in-service testing, the standard for Qualification of Mechanical Equipment, and the ASME Nuclear Quality Assurance standard is needed to provide a risk-informed approach across a plant life-cycle - encompassing design, construction, operation, maintenance and closure while meeting appropriate quality assurance requirements.
8. The ASME Codes and Standards Board of Directors recognizes the benefit of performance-based standards and has had an initiative for a number of years to replace prescriptive codes and standards with performance-based codes and standards.

The enclosure to this letter provides comments on each of the subject areas included in the ANPR. We plan to follow-up this letter with more detailed comments addressing the specific questions within each subject area prior to close of the comment period on December 29, 2006.

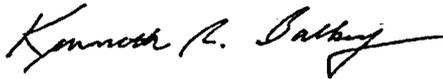
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Thank you for the opportunity to comment on this initiative. If there are any questions regarding these comments, please direct them to Mr. Kevin Ennis, ASME Director, Nuclear Codes and Standards by phone (212-591-7075) or e-mail ([ennisk@asme.org](mailto:ennisk@asme.org)).

Very Truly Yours,



Kenneth R. Balkey

Vice President

Nuclear Codes and Standards

cc: Members, ASME Board on Nuclear Codes and Standards  
Members, ASME BNCS Risk Management Task Group  
Members, ASME Committee on Nuclear Risk Management  
Members, Nuclear Risk Management Coordinating Committee

**Enclosure**  
**Advanced Notice of Proposed Rulemaking 10 CFR Part 53**  
**ASME Response to Subject Area Comments**

Note: ASME will provide more detailed comments addressing the specific questions within each subject area prior to close of the comment period on December 29, 2006.

**A. PLAN**

The concepts included in the ANPR and technology-neutral framework are sound. As stated in our Comment 3 in the ASME cover letter, applicability should be focused on the early Gen IV plants. Please see our Comment 6 in the ASME cover letter as it relates to planning.

**B. INTEGRATION OF SAFETY, SECURITY, AND EMERGENCY PREPAREDNESS**

New reactor designs need to address results and insights from safety risk analysis, security risk evaluations, and emergency preparedness planning. Because of uncertainties in probabilities for security risks, integration of safety and security risk models and calculations is premature, but close coordination of these evaluations is necessary. Integration of safety risk and security risk, at this time, would not be beneficial for two reasons: (1) the risk objectives are different and (2) the current rule making for site security is very active and needs to be followed through to completion to have a stable set of security requirements for the future plants. Efforts should continue to link emergency planning with both safety risk and security risk.

**C. LEVEL OF SAFETY**

The Quantitative Health Objectives are an appropriate basis to develop risk objectives to use for design requirements for new reactors. Where credible, for specific designs, subsidiary safety objectives, such as Core Damage Frequency for LWRs, could be developed. Level 3 PRAs will likely be needed to support emergency planning and probabilistic design methodologies that are dependent on target reliabilities established by the PRA to address design requirements, particularly for Gen IV reactors.

**D. INTEGRATED RISK**

The overall risk to the public for multiple reactors at a given site cannot be ignored if there are significant events that could cause simultaneous severe accidents. However, this overall risk evaluation should not include the contributions from existing reactors at the same site, unless the licensee desires to reduce existing emergency planning or exclusion boundaries. Including these plants would essentially require the backfit of a full scope PRA on the existing plant.

**E. ACRS VIEWS ON LEVEL OF SAFETY AND INTEGRATED RISK**

The detail comments on the ACRS questions will be addressed in a subsequent letter prior to the end of the ANPR comment period.

**F. CONTAINMENT FUNCTIONAL PERFORMANCE STANDARDS**

The performance standards should address the containment "system" not just the containment structure. The enclosure building around the reactor is only one component of the system. The 10 CFR Part 50 rules have always dealt with the containment system as a whole. The safety function of the containment system is to prevent the dispersion of radiological releases. The safety function of the reactor enclosure building, "containment for LWRs," is different for different reactor technology designs.

**G. TECHNOLOGY – NEUTRAL FRAMEWORK**

Detailed comments will be provided later to address the revised working draft of the framework that was issued on August 1, 2006.

**H. DEFENSE – IN – DEPTH**

A better description of defense-in-depth specific to safety margin in the context of a risk-informed, performance-based Part 53 is needed. It should be completed as part of the plan for 10 CFR Part 53 to ensure integration into development of implementing design processes and criteria..

**I. SINGLE FAILURE CRITERION**

Consideration should be given to risk-inform the single failure criteria approach. We will provide a more detailed response in our follow-on submittal.

**J. CONTINUE INDIVIDUAL RULEMAKINGS TO RISK-INFORM 10 CFR PART 50**

Since it will likely take several years to create 10 CFR Part 53, it is very important to continue, as a priority, the risk-informed, performance-based initiatives for 10 CFR Part 50 for new LWRs as discussed in the body of the ASME cover letter.

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**Date:** Fri, Aug 25, 2006 11:41 AM  
**Subject:** Federal Register Volume 71, Number 86, Thursday, May 4, 2006

Attached are comments on Proposed Rules published in the Federal Register Volume 71, Number 86, Thursday, May 4, 2006.

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