

RULEMAKING ISSUE
(Notation Vote)

June 14, 2007

SECY-07-0101

FOR: The Commissioners

FROM: Luis A. Reyes
Executive Director for Operations /RA/

SUBJECT: STAFF RECOMMENDATIONS REGARDING A RISK-INFORMED AND
PERFORMANCE-BASED REVISION TO 10 CFR PART 50
(RIN 3150-AH81)

PURPOSE:

To request Commission approval of the staff's recommendations regarding a risk-informed and performance-based (RI/PB) revision to 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities," and to inform the Commission of the results of the staff's review of stakeholders' comments on the various topics in the advance notice of proposed rulemaking (ANPR).

SUMMARY:

This paper provides the Commission (1) background information on the issuance of the subject ANPR, (2) a summary of the staff's actions to facilitate stakeholder comment on the issues in the ANPR, (3) an overview of the staff's analysis of the stakeholders' comments on the issues in the ANPR, and (4) the staff's recommendation to defer rulemaking to make 10 CFR Part 50 risk-informed and performance-based. The enclosure to this paper provides a more detailed analysis of the stakeholders' comments.

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BACKGROUND:

In SECY-06-0007, "Staff Plan to Make a Risk-Informed and Performance-Based Revision to 10 CFR Part 50," issued January 9, 2006 (ML053420012), the staff asked for Commission approval to publish an ANPR to solicit stakeholder input on a RI/PB revision to 10 CFR Part 50 and to supplement the ANPR, as needed, with additional information. In addition, the staff committed to (1) provide recommendations for Commission direction and approval on the two policy issues regarding the level of safety and integrated risk; (2) provide a path forward for Commission approval on the resolution of containment functional performance standards and on incorporation of a definition of defense-in-depth into the Commission's probabilistic risk assessment (PRA) policy statement; (3) inform the Commission of stakeholders' views on the ANPR; (4) provide the Technology-Neutral Framework (Framework) to the Commission, for information, after considering stakeholders' comments on the ANPR and having incorporated any additional guidance received from the Commission on the issues identified above; and (5) request Commission approval to initiate formal rulemaking on a new 10 CFR Part 53 and to initiate efforts to revise other regulations in 10 CFR Part 50, if any are identified.

In the Staff Requirements Memorandum (SRM), "Staff Plan to Make a Risk-Informed and Performance-Based Revision to 10 CFR Part 50," to SECY-06-0007 issued March 22, 2006 (ML060810277), the Commission approved the staff's recommendation to publish an ANPR. The Commission also directed the staff to (1) include questions in the ANPR on the Framework being developed by the Office of Nuclear Regulatory Research (RES); (2) publish the ANPR in the *Federal Register* with a comment period closing in December 2006; (3) place the latest working draft of the Framework on the RuleForum website no later than the date of publication of the ANPR; and (4) provide the Commission, at the end of the ANPR stage, with the staff's recommendation on whether and, if so, how to proceed with rulemaking having considered the Advisory Committee on Reactor Safeguards (ACRS) views and including any differing stakeholder views for the Commission's benefit when deliberating on the recommendation. Further, to facilitate stakeholder participation, the Commission directed the staff to hold public meetings and workshops starting soon after issuance of the ANPR and to keep stakeholders informed of progress throughout the public comment period.

DISCUSSION:

This paper provides a summary of (1) the staff's actions in response to the Commission's SRM; (2) the staff's analysis of the stakeholders' comments in response to the ANPR on the staff's plan regarding a RI/PB revision to 10 CFR Part 50, the Framework, and the policy issues included in the ANPR; and (3) the staff's progress on the commitments in SECY-06-0007.

Staff's Actions in Response to the SRM

The staff published the ANPR in the *Federal Register* with a comment period that closed December 29, 2006 (71 FR 26267; May 4, 2006) (ML060670055). The staff requested comments on the issues discussed in SECY-06-0007 and raised by the Commission in the associated SRM. These issues were included in the ANPR as ten separate topics (with corresponding questions) that addressed rulemaking, the Framework, and the policy issues. On April 27, 2006, the staff placed the Framework on the RuleForum website and the staff added an update of the Framework to the RuleForum website on August 1, 2006.

The staff met with stakeholders on June 15, 2006, to discuss the topics and questions in the ANPR. On September 14 and 15, 2006, the staff held a public workshop to provide an opportunity for a detailed discussion of the topics and questions in the ANPR and to obtain early stakeholder feedback. On March 7 and 8, 2007, the staff met with the ACRS in a round table discussion of the technical issues in the Framework. The staff offered to meet with the ACRS for further technical discussion prior to publishing the Framework report. On April 20, 2007, in response to an SRM from the Commission, the ACRS provided a letter (ML071100303) to the Commission regarding the Framework. On May 3, 2007, the staff met with the ACRS on its recommendation for rulemaking and on May 16, 2007, the ACRS provided a letter (ML071360076) to the Commission regarding the staff's recommendation.

Stakeholder's Comments

The staff received comments from ten stakeholders (including four preliminary sets). Comments were received from the Nuclear Energy Institute (NEI), the American Society of Mechanical Engineers, the American Nuclear Society, the Institute of Electrical and Electronics Engineers, Areva NP, General Electric Company, Westinghouse, Pebble Bed Modular Reactor (Pty) Ltd., the Strategic Teaming and Resource Sharing Alliance, and an individual associated with the Nuclear Equipment Forum. Some commenters only provided general comments on the ANPR plan or indicated that they agreed with the comments submitted by NEI.

The staff has categorized the stakeholders' comments into the following three groups: rulemaking, the Framework, or policy issues. An overview of the comments is provided below with a brief staff analysis. A more detailed analysis of the comments is provided as an enclosure to this paper.

Rulemaking Comments (ANPR Topics A, I, and J)

A. Plan to Risk Inform 10 CFR Part 50 – In general, all stakeholders were supportive of the plan to develop RI/PB requirements for future reactors but indicated that the NRC should not begin rulemaking immediately. Most stakeholders suggested that before initiating rulemaking, draft requirements using the Framework as the technical basis should be developed and made available for discussion and that the draft requirements should be tested against the licensing of a non-light-water reactor (LWR) under 10 CFR Part 50 and Part 52, "Early Site Permits; Standard Design Certifications; and Combined Licenses for Nuclear Power Plants," as a pilot. Most stakeholders stated that the NRC needs to maintain a high priority on completing the licensing of the next generation of near-term LWRs and review of design certifications.

Stakeholders had mixed views as to whether requirements should be technology-neutral or technology-specific and thought a "test case" applying draft requirements would inform this topic.

I. Single Failure Criterion – Stakeholders supported replacing the Single Failure Criterion with an approach in which the frequency and consequences of each licensing basis event are taken into account and there are no arbitrary redundancy requirements. Stakeholders recommended that this approach be undertaken as part of the plan to risk inform 10 CFR Part 50 and be supported by the Framework.

J. Continue Individual Rulemaking to Risk Inform 10 CFR Part 50 Requirements – Almost all stakeholders supported completing current rulemaking efforts to risk inform 10 CFR Part 50. Regarding initiating new rulemakings, many stakeholders indicated that the best candidates for risk-informed rulemaking had already been revised.

The staff agrees with the stakeholders that new rulemakings are not warranted at this time. For LWRs, the staff agrees that the NRC should not undertake new risk-informed and performance-based revisions of 10 CFR Part 50 until specific rules are identified as needed. This approach will allow industry and the NRC to focus resources on maintaining the safety of existing reactors and on the expedient licensing of new reactors to existing requirements. The staff will propose candidate rulemakings after the staff and industry have had time to identify appropriate candidates. For non-LWRs, the staff believes that the results of the development of the licensing strategy for the Next Generation Nuclear Plant (NGNP) and the Pebble Bed Modular Reactor (PBMR) pre-application review will help determine how to proceed to rulemaking. The staff believes this approach is appropriate, in part, because rulemaking is not needed for the near-term LWR licensing applications expected in the 2007-2010 time frame.

Framework Comments (ANPR Topic G)

G. The Framework – In general, stakeholders agreed with the top down approach used in developing the Framework and agreed that the next step should involve testing the Framework on a specific reactor design. Stakeholders gave specific comments on the criteria in the Framework. For example, stakeholders considered the approach for the selection of licensing basis events (LBE) and their acceptance criteria reasonable but some specific changes were suggested, e.g., the use of a 95% confidence level for the rare frequency category (i.e., $<10^{-5}$ /reactor year to $\geq 10^{-7}$ /reactor year) is overly restrictive, and mean values should be used in the Framework. Stakeholders also requested clarification of certain criteria and guidance in the Framework.

The staff is reviewing the stakeholders' comments to determine where and if the Framework needs to be revised. In addition, as noted above, on March 7 and 8, 2007, the staff met with the ACRS (subcommittee and full committee, respectively) in a round table discussion of the technical issues in the Framework. The staff has offered to meet with the ACRS for further technical discussion prior to publishing the Framework report. On April 20, 2007, the ACRS issued a letter to the Chairman with its views on the value of the Framework approach. The ACRS recommended that the staff should complete the technology-neutral Framework and that the staff should test it on the PBMR design. On May 16, 2007, after meeting with the staff on its recommendation, the ACRS issued a second letter supporting the staff's recommendation not to initiate rulemaking at this time and recommending additional interaction with the staff on resolution of the technical issues in the Framework.

The Framework's primary objective is to demonstrate the feasibility of a possible risk-informed and performance-based approach that would serve as the technical basis for licensing a reactor employing any technology. The staff believes that this objective will be accomplished with publication of the Framework. The staff plans to publish the Framework in 2007.

The staff agrees that the PBMR pre-application and licensing activity is a logical choice on which to test the concepts presented in the Framework. At the time of licensing, the staff will have the applicant's PRA available, and the staff anticipates that the Framework concepts could be used in the review of the PBMR design. This licensing activity would be in addition to the testing already completed for a LWR, which is documented in Appendix E of the Framework report.

Policy Issue Comments (ANPR Topics B, C, D, E, F and H)

B. Integration of Safety, Security, and Emergency Preparedness – Stakeholders overall expressed concerns for integrating safety, security, and emergency preparedness. The general concern raised was that integration of security would limit public participation. Some stakeholders believed integration was premature, not beneficial, or not practical.

C. Level of Safety, D. Integrated Risk, and E. ACRS Views – Stakeholders agreed that the quantitative health objectives (QHO) established in the Commission's Safety Goal Policy should be used to establish the minimum level of safety for new plants. Most stakeholders questioned the need to establish subsidiary risk objectives for accident prevention and accident mitigation; rather, it was expressed that both preventive and mitigative measures should be considered when evaluating a plant's ability to meet the QHOs. There was no consensus concerning the consideration of integrated risk. Regarding the ACRS views, in general, stakeholders believed the ACRS had raised important and relevant points about these issues.

F. Containment Functional Performance Standards – In general, stakeholders did not agree with the staff's proposed containment performance standards as documented in the Framework. Philosophically, industry stakeholders believed that defense-in-depth for protection against unacceptable fission product release could be achieved in ways different from relying on the performance of a specific (containment) barrier, whose functional performance requirement is specifically established to accommodate unknowns.

The staff believes that further insights which are expected to be gained through additional deterministic sensitivity analyses and review as part of a pre-application review for the NGNP reactor design and/or PBMR will help to better define a path forward for resolving these technical policy issues and toward resolving the differences between external stakeholder and staff views.

H. Defense-in-Depth – Stakeholders supported development of a separate policy statement on defense-in-depth, rather than a revision of the PRA policy statement because it is believed that defense-in-depth is broader than, and not limited to, PRA. Regarding the definition for defense-in-depth provided in the Framework, stakeholders were generally supportive but indicated a desire to have further interaction with the NRC prior to the development or finalization of a defense-in-depth policy statement to better understand the definition, principles, etc., described in the Framework. Further, some stakeholders recommended that the definition be "tested."

The staff will continue to interact with stakeholders in the development of a policy statement on defense-in-depth and will examine the merit of a test and what this test would entail.

COMMITMENTS:

Listed below are the actions or activities committed to by the staff in this paper.

1. The staff will publish the Framework as a NUREG after considering stakeholders' comments from the ANPR and any additional comments from the ACRS.
2. The staff will initiate efforts to develop a policy statement for Commission consideration on defense-in-depth. As part of this effort, the staff will interact frequently with stakeholders to facilitate their participation and to inform them of staff progress.

RECOMMENDATION:

The staff recommends that the Commission approve deferring rulemaking for risk-informed and performance-based 10 CFR Part 50 reactor requirements for advanced reactors until after the development of the licensing strategy for the NGNP or receipt of an application for design certification or a license for the PBMR. The staff will provide the Commission a recommendation on initiating rulemaking 6 months after the licensing strategy for the NGNP is finalized.

RESOURCES:

For FY 2008, the staff budgeted the following resources for this rulemaking: 1 FTE and 25k for NRR, .1 FTE for NRO, and .1 FTE for OGC. The staff plans to reallocate these resources using the Planning, Budgeting, and Performance Management process. The staff will provide the Commission resource estimates for technical basis development and rulemaking in FY 2009 and FY 2010 in its recommendation for rulemaking that will be provided after the licensing strategy for NGNP is developed. Resources for development of the NGNP licensing strategy are already budgeted.

The Commissioners

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COORDINATION:

The Office of the General Counsel has reviewed this paper and has no legal objection. The Office of the Chief Financial Officer has reviewed this paper for resource implications and has no objections.

/RA Martin J. Virgilio Acting For/

Luis A. Reyes
Executive Director
for Operations

Enclosure:
Stakeholder Comments in Response to the
Advance Notice of Proposed Rulemaking

The Commissioners

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ADAMS Package Number: ML070790253

WITS 200600169

OFFICE	DPR/PFPB	TechEd	RES/DRASP	NRR/DPR	OGC	ADM
NAME	JBirmingham	LCulp	MDrouin	MCase (TQuay for)	FCameron (GMizuno for)	MLesar
DATE	04/23/07	04/25/07	05/24/07	04/25/07	05/04/07	04/27/07
OFFICE	CFO	NSIR	RES	NRO	NRR	EDO
NAME	TCroote	RZimmerman (WDean for)	BSheron	RBorchardt (GHolahan for)	JDyer	LReyes
DATE	05/29/07	05/22/07	05/29/07	05/16/07	05/25/07	06/14/07

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