# POLICY ISSUE
## INFORMATION

October 25, 2006 SECY-06-0217

FOR: The Commissioners

FROM: Luis A. Reyes
Executive Director for Operations

SUBJECT: IMPROVEMENT TO AND UPDATE OF THE RISK-INFORMED REGULATION IMPLEMENTATION PLAN

PURPOSE:

To provide the Commission with the staff's response in part to the staff requirements memorandum (SRM) M060503B, "Briefing on Status of Risk-Informed and Performance-Based Reactor Regulation," dated June 1, 2006, which directed the staff to: (1) improve the risk-informed regulation implementation plan (RIRIP) so that it is an integrated master plan for activities designed to help the agency achieve the Commission's goal of a holistic, risk-informed, and performance-based regulatory structure; and (2) seek ways to communicate the purpose and use of probabilistic risk assessments (PRAs) in the U.S. Nuclear Regulatory Commission's (NRC's) reactor regulatory program more transparently to the public and stakeholders. In addition, this paper: (1) summarizes the significant risk-informing accomplishments completed over the past 6 months and activities planned for completion over the next 6 months; and (2) provides the semiannual RIRIP update.

BACKGROUND:

In 1995, the Commission issued a policy statement regarding the use of PRA methods in nuclear regulatory activities. One purpose of the policy statement was to assure that the many potential applications of PRA were implemented in a consistent and predictable manner that would promote regulatory stability and efficiency. The policy statement directed that the use of

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PRA technology should be increased in all regulatory matters to the extent supported by the state-of-the-art in PRA methods and data, and in a manner that complements the NRC's deterministic approach and supports the NRC's traditional defense-in-depth philosophy. In addition, the policy statement directed that the agency should use PRA and associated analyses (e.g., sensitivity studies, uncertainty analyses, and importance measures) in regulatory matters, where practical within the bounds of the state-of-the-art, to reduce unnecessary conservatism associated with current regulatory requirements, regulatory guides, license commitments, and staff practices.

In a January 2000 memorandum to the Commission, the staff outlined a strategy for implementing risk-informed regulation. That strategy evolved into the initial RIRIP, which the staff provided to the Commission in 2000. The Commission reviewed the plan and, after a briefing by the staff in March, directed the staff in April 2000 to include in the next RIRIP update an internal communications plan, staff training requirements, and a discussion of internal and external factors that may impede risk-informed regulation. The staff issued the first complete version of the RIRIP in October 2000. Since then, various other interactions between the Commission, staff, and stakeholders have culminated in the latest version of the RIRIP (SECY-06-0089), which was issued on April 18, 2006.

On May 3, 2006, the NRC staff and representatives of the nuclear power industry briefed the Commission on the status of risk-informed and performance-based reactor regulation. As discussed during that meeting, significant progress has been made on the agency's risk-informed initiatives, but much work remains to be done. On June 1, 2006, the Commission issued an SRM M060503B which directs the staff to (1) improve the RIRIP so that it is an integrated master plan for activities designed to help the agency achieve the Commission's goal of a holistic, risk-informed, and performance-based regulatory structure, and (2) seek ways to communicate more transparently the purpose and use of PRAs in NRC's reactor regulatory program to the public and stakeholders.

DISCUSSION:

This paper provides the staff's response to the June 1, 2006, SRM on improving RIRIP (Enclosure 1) and on identifying ways to communicate the purpose and use of PRAs more transparently. In addition, this paper summarizes the significant risk-informing accomplishments completed over the past 6 months and those activities planned for completion over the next 6 months (Enclosure 2), and the semiannual RIRIP update (Enclosure 3). The semiannual RIRIP update provided to the Commission in April 2007 will reflect the improvements discussed in this paper.

RIRIP Improvements

The staff believes that the RIRIP should continue to serve as the vehicle to coordinate the staff's activities in implementing the Commission's 1995 PRA policy statement. As such, the RIRIP should document the staff's plans to achieve that vision, and identify the regulatory requirements and practices to be risk informed and the necessary data, methods, guidance, and training to be developed.

The NRC's PRA Steering Committee (PRASC)[1] (composed of the Office Directors of Nuclear Material Safety and Safeguards, Nuclear Reactor Regulation, Nuclear Regulatory Research, Nuclear Security and Incident Response; the Director of the Office of Enforcement; one Regional Administrator; and a representative of the Office of the General Counsel) met to (1) review the steering committee's charter in relation to RIRIP and (2) evaluate options for improving RIRIP in response to the Commission's SRM. The PRASC concluded that the improvements should focus on the up-front RIRIP planning process and on the back-end following completion of RIRIP activities through the addition of an effectiveness review process.

With regard to the RIRIP planning process, for the past several years, the RIRIP has focused on two of the NRC's performance goals (i.e., safety and effectiveness) discussed in the Strategic Plan for fiscal year (FY) 2004–2009. This structure links the various RIRIP activities being pursued and strategies discussed in the Strategic Plan; however, it does not facilitate a clear understanding of how these activities contribute, either individually or collectively, toward achievement of a particular risk-informed vision or specific risk-informed goals.

The NRC's core business is aligned along 3 arenas (i.e., reactors, materials, and waste), and within each arena, the NRC performs its activities in 3 functional areas (i.e., oversight, licensing/certification, and rulemaking and guidance development). To improve the RIRIP, the staff believes that a risk-informed vision needs to be defined for each arena, and specific goals developed for each functional area.

Historically, the reactor arena has encompassed NRC's activities associated with the following categories of reactors: operating reactors, new reactors (i.e., near-term early site permits, combined licenses, and design certifications), and advanced reactors (i.e., non-light-water reactors). Within the RIRIP, the staff concludes that it may be necessary to separate the reactor arena for these reactor categories to facilitate development of a clear vision and specific goals. This is due to the large difference in the extent to which these reactor categories could feasibly be risk-informed and performance-based. For example, in response to the Commission's SRM relating to SECY-05-130, "Policy Issues Related to New Plant Licensing and Status of the Technology-Neutral Framework for New Plant Licensing," the staff is considering the spectrum of issues relating to risk-informing the reactor requirements for advanced reactors, and is to integrate safety, security, and preparedness throughout this effort. This could provide a coherent risk-informed and performance-based regulatory structure for advanced reactors.

Similarly, the staff will consider whether the materials and waste arenas need to be further separated within the RIRIP to recognize any fundamental differences that impact the extent to which they can be risk-informed.

To develop the vision and goals, the staff will perform an assessment of where the agency should take risk-informed regulation in the short term (i.e., 1–5 years) and, if possible, the long term (i.e., 5–10 years). This assessment will factor in Commission guidance and input received

[1]The NRC recently reorganized the Offices of Nuclear Reactor Regulation and Nuclear Material Safety and Safeguards. As a result, the PRASC will be reconstituted to reflect the new organization. In addition, the next semi-annual RIRIP update will reflect the new organizations.

from stakeholders. The staff will use the resulting vision and goals to assess current RIRIP activities to determine what activities should continue, what activities should be sunset, and what new activities are needed. The staff will restructure the RIRIP around these arenas to facilitate a clear understanding of the agency's plan. For each activity that is determined to be necessary to meet the vision and goals, the staff will develop a program plan that contains specific milestones and deliverables.

The staff anticipates that there will be significant differences in the vision and goals established for the various arenas because of such factors as (1) the inherent major differences in the complexities and risk associated with NRC-regulated licensed activities (e.g., a nuclear power plant versus a sealed radioactive source), (2) the state-of-the-art with regard to PRA technology and methods (i.e., PRA methods are relatively well developed for the reactor arena versus the materials and waste arenas), (3) the level of commitment of stakeholders in the various arenas interested in pursuing risk-informed activities, and (4) the potential cost and benefits associated with adoption of risk-informed approaches.

With regard to the back end, the RIRIP currently does not have an integral effectiveness review process built into it. Therefore, the staff is developing a process with the goal of determining whether the desired outcomes from the various RIRIP activities were achieved and, if not, why not. The effectiveness review process will identify lessons learned from completed RIRIP activities that should be adopted as best practices for future activities. In addition, the effectiveness review will look to identify barriers to the further use of risk-informed regulation.

Enclosure 1 provides additional information on the staff's plan to develop a better RIRIP planning process and effectiveness review process.

Communicating the Purpose and Use of PRAs

In response to the Commission's direction in SRM M060503B to seek ways to communicate more transparently the purpose and use of PRAs in NRC's reactor regulatory program to the public and stakeholders, the staff is (1) redesigning the NRC public website to make information on NRC's risk-informed initiatives and PRA applications easier to locate and understand, (2) developing a web-based interface to allow the staff to update the RIRIP activities more timely and efficiently, and (3) implementing an RIRIP Openness Strategic Plan Goal (OP-1) to improve the NRC's ability to communicate complex information on risk-informed regulation.

The staff expects that information from the redesigned website will improve the quality of the RIRIP. The website will also include an easy-to-understand tutorial on PRA technology and risk, as well as a section highlighting key risk-informed initiatives being undertaken by the various program offices. Updates to the public website will replace Enclosure 3 starting with the April 2007 RIRIP Paper. The staff will develop a communications plan to roll out the new website.

Semiannual RIRIP Update and Significant Accomplishments

Enclosure 2 summarizes the highlights of the major risk-informing activities that the staff has completed over the past 6 months and those activities that are scheduled for completion over the next 6 months. Enclosure 3 provides the semiannual RIRIP update.

COMMITMENTS:

The staff will update the Commission on progress made in implementing the RIRIP improvements proposed in this paper and a status on the development of an integrated Master Plan in the next semiannual RIRIP update. The staff will maintain the schedule for conducting effectiveness reviews in the RIRIP. The staff will develop and implement a communications plan associated with rolling out the new website.

RESOURCES:

In response to the Commission's direction regarding the October 2000 version of the RIRIP, the updated plan lists the priority rating of each risk-informed regulation implementation activity. The staff determined these priorities through the FY 2008 planning, budgeting, and performance management (PBPM) process, according to a common prioritization methodology developed by the program offices and used to derive a prioritized listing of planned activities. Resources for RIRIP activities—except those activities noted as being deferred (i.e., "on hold")—have been budgeted in FY 2007 and for FY 2008. The Office of Nuclear Regulatory Research has 0.5 FTE in it's budget to coordinate the RIRIP. Currently, effectiveness reviews are not budgeted. Once a process is identified, funds will be requested via the PBPM process.

COORDINATION:

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

**/RA William F. Kane, Acting for/**

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Enclosures:
1. Improvements to the Risk-Informed Regulation Implementation Plan
2. Highlights of Major Risk-Informing Activities
3. Risk-Informed Regulation Implementation Plan

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