

November 5, 2012

MEMORANDUM TO: Chairman Macfarlane
Commissioner Svinicki
Commissioner Ostendorff

FROM: Commissioner Apostolakis /RA/
Commissioner Magwood /RA/

SUBJECT: Proposed Initiative to Improve Nuclear Safety and Regulatory Efficiency

The purpose of this initiative is to enhance safety by applying probabilistic risk assessment to determine the risk significance of current and emerging reactor issues in an integrated manner and on a plant-specific basis. Recognizing that each operating nuclear power plant has unique contributors to risk, a licensee who performs such an assessment could use the insights gained to propose for NRC approval a prioritization of the schedule for implementation of regulatory actions. Such prioritization, if approved, should both speed a licensee's completion of the most important new safety measures and also address the challenges licensees face implementing new regulatory positions, programs, and requirements, i.e., the cumulative effects of regulation. An additional benefit would be that licensees would be incentivized to develop high-quality PRAs that would support enhanced safety now and into the future. If this initiative is implemented and proves successful, a future development could include the ability of licensees to propose alternative actions.

Background and Discussion

The Commission is addressing an increasingly wide range of important regulatory issues related to the safety of U.S. nuclear power plants, such as fire protection, GSI-191, and our response to the accident at the Fukushima Daiichi nuclear plant. In addition, the need to consider issues on a plant-specific basis has been highlighted by events such as the Fukushima disaster, the flood at the Ft. Calhoun plant, and the earthquake at the North Anna site. Plants are different not simply in terms of their designs, but also because of how they are operated, their site configurations, and their natural environments.

Probabilistic risk assessments (PRAs) have also demonstrated that the dominant contributors to risk are plant-specific. A clear lesson of the Fukushima Daiichi accident is that protective actions taken at each plant should be carefully tailored to address the unique design and site-specific characteristics of that plant (e.g., the tsunami risk at Fukushima).

When the NRC issues regulations, it requires that they be implemented by all affected licensees in a set time frame. Licensees are typically not permitted to prioritize implementation of

regulatory requirements on a plant-specific basis. Even with recent efforts to deal with cumulative effects of regulation, the agency continues to address regulatory imperatives by compelling all licensees or classes of licensees to take action on the same schedule.

As a licensee stated during a public Commission meeting earlier this year, “all regulatory issues are high priority.” If all regulatory work is of high priority, then none is of high priority. Nuclear safety is advanced when licensees and the staff focus their time, attention, and resources on the issues of greater safety significance at each plant.

A plant-specific approach to implementation of regulatory actions would serve to focus licensee and NRC attention more effectively on important safety issues in those cases in which they present higher relative risks and to defer other issues of lower safety significance. If such a prioritization were effected at each plant, it would improve the safety of the fleet and would also enable licensees to manage their resources and work in a more effective and efficient manner. In addition to the primary advantage of improving safety, this initiative is also likely to alleviate concerns about the cumulative effects of regulation.

Our proposal is to enhance safety by promoting the use of the risk significance of current and emerging reactor issues in an integrated manner and on a plant-specific basis when prioritizing regulatory actions, in order to recognize that each operating nuclear power plant faces unique contributors to risk.

Congressional Oversight Committees and the Government Accountability Office have recently pointed out that the NRC has not required PRAs for external events. To implement the plant-specific approach that we envision, licensees would be required to apply a high-quality PRA, including external events, to support plant-specific prioritization requests. Power reactor licensees should be incentivized to develop a full-scope PRA that accounts for site-specific hazards, thereby improving safety. The incentive we envision is licensee flexibility to plan and schedule regulatory work.

This initiative is focused on applying risk concepts to making decisions on the timing of implementation of requirements, whether within the established regulatory framework or under a revised framework that may result from Recommendation 1 of the Fukushima Near-Term Task Force.

We recognize that implementing this approach would lead to changes in the processes the NRC uses to manage its regulatory work. We therefore encourage the staff to think practically about how such an approach could best be implemented. When accomplished, we believe that this initiative will result in an important step in ensuring continued high levels of nuclear safety in the United States.

Proposed Staff Direction

- 1) Staff should develop a notation vote paper for Commission consideration within one year providing approaches for allowing licensees to propose to the NRC a prioritization of the implementation of regulatory actions as an integrated set and in a way that reflects their risk

significance on a plant-specific basis. Similar to the requirements for new reactors, such a proposal would require licensees to develop full-scope PRAs that account for site-specific natural hazards.

- 2) Staff should discuss how NRC processes and policies might be affected by allowing such a prioritization process.
- 3) This effort should not impact the schedules that the staff has established to respond to Recommendation 1 of the Fukushima Near-Term Task Force and the Risk Management Task Force recommendations.
- 4) If a rulemaking is required, staff should provide the Commission with a schedule of work and an estimate of the resources required to complete both the rulemaking and the implementation processes.
- 5) Staff should provide a Commissioners' Assistants brief within four months to present its initial consideration of the approach required to respond to an SRM resulting from this proposal.

SECY, please track.

cc: SECY
 CFO
 OGC
 EDO