

October 15, 2007

Mr. Marvin S. Fertel, Senior Vice-President
and Chief Nuclear Officer
Nuclear Energy Institute
1776 I Street, NW, Suite 400
Washington, D.C. 20006-3708

Dear Mr. Fertel:

On behalf of the U.S. Nuclear Regulatory Commission (NRC), I wish to thank you and the industry representatives who took the time to brief the Commission on August 2, 2007, regarding risk-informed, performance-based regulation. We would like to respond to some of the discussion areas presented during your visit and in your follow-up letter of August 14, 2007, to Chairman Klein.

In your letter, you stated that essentially all plants have probabilistic risk assessment (PRA) models that are of comparable technical adequacy to those plants represented at the briefing. The staff understands that all plant PRA models have undergone a peer review based on the guidance provided by the owners' groups or by the Nuclear Energy Institute (NEI) in NEI 00-02. These peer reviews have resulted in a number of open items that a licensee would need to resolve to ensure high quality and consistency of the PRAs. The staff believes that not all significant open items have been resolved. By completing the ongoing efforts to address the results of the peer review and Regulatory Guide 1.200, "An Approach for Determining the Technical Adequacy of Probabilistic Risk Assessment Results for Risk-Informed Activities," the industry will be able to assure consistency of technical quality required for risk-informed methods for regulatory applications. We strongly encourage industry to continue with these efforts.

You also addressed in your letter opportunities for improving the significance determination process (SDP), and included example proposals on the use of the licensee's PRAs. The staff, together with NEI, industry representatives, and other stakeholders, have held a series of public meetings to discuss these proposals. The results of the staff's review of these proposals are discussed in the enclosure. The staff has concluded that the continued use of the NRC's standardized plant analysis risk (SPAR) model is, at present, the appropriate mechanism to evaluate the risk significance of findings in the SDP. The staff is willing to discuss any concerns you have with the adequacy of the SPAR models and any additional process improvements to the reactor oversight process.

Finally, as described in your letter, we agree that further development of full-scope PRAs that are consistent with an integrated standard is a meaningful goal. The development and NRC endorsement of PRA quality standards for low power and shutdown operations, accident progression analysis, and offsite consequence analysis are long term objectives. Given the time

period necessary for development and endorsement of the standards, conducting pilot applications, and updating licensee PRAs, we encourage the continued participation of the industry in the timely development of these standards so that we can meet these objectives.

We look forward to working with the industry and the public as we continue to develop and refine risk-informed regulations and a standardized application of risk assessment models to further the agency's mission of maintaining public safety.

Sincerely,

/RA/

Luis A. Reyes
Executive Director
for Operations

Enclosure:
Significance Determination
Process Evaluation

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Significance Determination Process Evaluation

The August 14, 2007, letter from the Nuclear Energy Institute (NEI) noted an industry proposal to use industry probabilistic risk assessment (PRA) analyses for assessing the significance of findings in lieu of the Nuclear Regulatory Commission (NRC) risk assessment tools. The NRC has reviewed the industry proposal and the results of this review are discussed below.

In considering the use of licensees' probabilistic risk assessments (PRAs) for the significance determination process (SDP), the NRC staff, together with NEI, industry representatives, and other stakeholders, have held a series of public meetings to discuss the question of whether and how licensee PRA models that are updated to meet Regulatory Guide (RG) 1.200, "An Approach for Determining the Technical Adequacy of Probabilistic Risk Assessment Results for Risk-Informed Activities," can be factored into the SDP. A task group was formed to investigate various risk assessment options in lieu of using the standardized plant analysis risk (SPAR) models in the SDP. A number of options were developed and discussed with the industry during the public meetings. In particular, the industry recommended that licensee risk analysts assess the risk of performance deficiencies and provide the results to the NRC for review and action.

The following topic areas were discussed during the public meetings between the NRC and the licensees:

- (1) Maintaining the independence of the NRC and licensees' models.

The NRC staff has concluded that, because the NRC's Reactor Oversight Process (ROP) is intended to provide an independent regulatory assessment of licensee performance, it would be inappropriate for licensee risk analysts to take the lead in assessing the significance of performance deficiencies at their site. Such an arrangement would also minimize the NRC staff's ability to ensure that issues are assessed in a timely manner. Maintaining the NRC's independent oversight of licensee performance is critical for effective NRC oversight and is an important aspect of upholding public confidence in the process.

- (2) The nature of the differences in the SDP outcomes using NRC versus licensee assessment methodologies.

Many insights were shared and conclusions reached by these meetings. In summary, it was noted that differences in SDP outcomes between the NRC and the licensee are driven by factors other than the baseline PRA model used for the analysis; in fact, the PRA models are often in close agreement. The differences, however, are seen in the way engineering assumptions, human reliability analysis, and recovery are handled within the analysis. We recognize that licensees may have unique perspectives on the event or condition under agency review. Therefore, the SDP allows for input from licensees regarding such risk insights and we intend to encourage further engagement with the licensees on SDP findings.

Enclosure

(3) Standardization of modeling and assessment techniques used.

At present, the industry has not uniformly implemented a standardized approach to performing risk analysis that would ensure uniform application across the spectrum of industry PRA models. In this regard, the NRC's use of the SPAR models, together with the ongoing development of guidance on conducting Phase 3 risk assessments, commonly referred to as the risk assessment standardization project (RASP), ensures greater uniformity in the agency's regulatory assessments. To aid licensees, we intend to make the RASP manual publicly available in the near future.

(4) Potential use by the NRC staff of licensees' PRA models.

We also considered an alternative to the current NRC staff use of SPAR models where the staff would be provided with the licensee PRA models. Under this option, the staff would perform the assessment of risk significance using the licensee model. We have concluded that the logistical and resource needs to maintain the 70-plus industry PRA models on some four software platforms would require the diversion of NRC staff efforts and the addition of risk analysts. These NRC resources would be more effectively used for other tasks. At present, this alternative is not a viable option unless the industry implemented a single RG 1.200 compliant modeling approach on one analysis platform facilitating efficient use of NRC resources.

We believe that continued improvement to the standardization of PRA modeling methods in SPAR and industry PRA models is the most effective use of resources, commensurate with the need for the staff to maintain its own methods for confirmatory and independent analysis.