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NUCLEAR ENERGY INSTITUTE

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Joseph Giitter
Director, Division of Risk Assessment
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Subject: Activities for Improving the Assessment of PRA Technical Adequacy

Project Number: 689

Dear Mr. Giitter:

On behalf of the nuclear energy industry, the Nuclear Energy Institute (NEI)[1] is writing in response to your request made during a July 29, 2015 public meeting, the purpose of which was to discuss the implementation details for the Risk Management Regulatory Framework (RMRF) Option 2 - Alternative Risk-Informed Licensing Basis. During the meeting, there was discussion of issues that would need to be addressed to be able to implement this option. In particular, Nuclear Regulatory Commission (NRC) staff discussed the potential need to modify the current approach to determining the suitability of a probabilistic risk assessment (PRA) for supporting the risk-informed alternative licensing basis. In the white paper drafted in support of the meeting entitled, "Further Thoughts on Risk Management Regulatory Framework (RMRF)" (ML15189A131), the NRC identified potential enhancements that would be needed in the current process to assess PRA technical adequacy, and requested that the NEI provide an assessment of the enhancements and how to best to accomplish them.

Several of the issues identified in the white paper are being addressed through the activities for improving the assessment of PRA technical adequacy currently guided by the Risk-Informed Steering Committee, and other issues are addressed in existing guidance for PRA peer reviews. Table 1 below provides details on the specific PRA technical adequacy assessment issues noted in the staff's white paper, and identifies the current approaches (mechanisms) for addressing them.

[1] The Nuclear Energy Institute (NEI) is the organization responsible for establishing unified industry policy on matters affecting the nuclear energy industry, including the regulatory aspects of generic operational and technical issues. NEI's members include all entities licensed to operate commercial nuclear power plants in the United States, nuclear plant designers, major architect/engineering firms, fuel cycle facilities, nuclear materials licensees, and other organizations and entities involved in the nuclear energy industry.

Table 1 – PRA Peer Review Technical Issues Associated with Implementation of RMRF Option 2

Issue Identified in NRC Staff White Paper on RMRF Option 2 (ML15189A131)	Current Mechanism to Address Issue
The initial peer review of the PRA model would be expanded to be in-depth, cover the entire model, ensure that accepted methods are employed, and include satisfactory resolution of the findings of the review.	Peer reviews already cover the scope of the PRA model as requested by the utility, and the peer review reports specifically note the scope of the review. The resolution of facts and observations (F&Os) from peer reviews will be addressed by the Risk-Informed Steering Committee work on F&O close out. Specifically, this is being addressed by a white paper developed by the PRA Technical Adequacy Working Group, which is being reviewed by NRC staff for endorsement.
The peer review guidance may need to contain criteria for assessing if the PRA is acceptable for use for either all applications or individual applications.	The existing guidance for conducting peer reviews already assesses the PRA against different Capability Categories, and application-specific acceptability can be determined based on the Capability Categories assigned to the supporting requirements in the ASME/ANS PRA Standard[2].
The criteria for the scope, level of detail and periodicity of the peer reviews may need to be expanded to ensure that the peer review is sufficient to address the application.	The ASME/ANS PRA Standard provides criteria in Section 1-3, Risk Assessment Application Process, to ensure that the reviewed PRA is sufficient to address the risk-informed application and Sections 1-5 and 6 provide the requirements for when a new peer review is required.
The resolution of the findings of the peer review may also need to be peer reviewed for acceptability.	This issue is being addressed through the PRA Technical Adequacy Working Group activities to improve the process for F&O close out. A white paper outlining different options is current under review by the NRC for the staff's endorsement. The progress of this effort is being followed by the Risk-Informed Steering Committee.
The rule or implementing guidance would need to specify detailed criteria for what is needed to maintain, update and upgrade the PRA.	The ASME/ANS PRA Standard provides criteria in Section 1-5, PRA Configuration Control. Further, non-mandatory Appendix 1-A, PRA Maintenance, PRA Upgrade, and the Advisability of Peer Review, provides 37 examples of how to assess the need for an PRA update versus upgrade.

[2] The version of the PRA Standard currently endorsed by the NRC (through Regulatory Guide 1.200_is ASME/ANS RA-Sa-2009, Addenda A to ASME/ANS RA-S-2008, Standard for Level 1/Large Early Release Frequency Probabilistic Risk Assessment for Nuclear Power Plant Applications. A second addendum exists, ASME/ANS RA-Sb-2013, for which the NRC has decided not to expend the resources necessary to endorse it.

Issue Identified in NRC Staff White Paper on RMRF Option 2 (ML15189A131)	**Current Mechanism to Address Issue**
Certain methods have not necessarily been accepted as the state-of-practice and may require review for acceptability which is currently not addressed in either RG 1.200, the ASME/ANS PRA standard or the associated NEI peer review guidance.	This issue should be addressed by the new vetting panel process proposed by the Risk-Informed Steering Committee.
The peer review is a framework to characterize the technical adequacy of the base PRA model. Though it provides findings and suggestions related to individual aspects of the technical elements of the PRA, it does not have criteria for accepting or not accepting the technical adequacy of the overall PRA and does not look at the application of the model or the other aspects, such as scope and level of detail.	The peer review report, which summarizes the in-depth review done against specific technical elements in the ASME/ANS PRA Standard, provides information needed to ascertain the scope and technical adequacy of a PRA as relevant to an application. Further, the ASME/ANS PRA Standard provides criteria in Section 1-3, Risk Assessment Application Process, to ensure that the reviewed PRA is sufficient to address the risk-informed application.
Peer reviews are a snapshot of a PRA and look at only a sample of the model.	Although peer reviews only review a model at any given moment in time, this is the case for any review process that may be undertaken. A robust maintenance and update process, such as that called for in Section 1-5 of the ASME/ANS PRA Standard, supports the living PRA.
Findings of a peer review are not closed out by the peer review team but are left to the licensee to disposition on an application-by-application basis.	This will be addressed by the Risk-Informed Steering Committee work on F&O close out. A white paper outlining different options is current under review by the NRC for the staff's endorsement.
New methods have been handled inconsistently in peer reviews (some accepting the methods without any significant review and others flagging the new method with a finding, essentially indicating it was an un-reviewed area). Often peer review team members don't have the requisite background or qualifications to perform such a technical review.	This will be addressed by the new vetting panel process proposed by the Risk-Informed Steering Committee. The last statement in the NRC's issue is not factually correct. Instances of inappropriate peer reviewer qualifications have not been "often." These cases generally revolve around an incomplete resume, not lack of reviewer qualifications.

If you have any questions or require additional information, please contact me (202-739-8083; mdt@nei.org).

Sincerely,

Michael D. Tschiltz

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