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NUCLEAR ENERGY INSTITUTE

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Ms. Margaret Doane
Executive Director for Operations
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Subject: Facilitating Regulatory Transformation through an Understanding of the Current Levels of Safety

Project Number: 689

Dear Ms. Doane:

The Nuclear Energy Institute (NEI)[1] and our members appreciate recent efforts by the U.S. Nuclear Regulatory Commission (NRC) in identifying the need to transform the regulatory framework to include safety insights to help focus resources on the most safety significant issues. The attached white paper, "Facilitating Regulatory Transformation through an Understanding of the Current Levels of Safety," provides insights into the current level of safety of the U.S. nuclear fleet and how understanding the margin of plant safety to the NRC Safety Goals is foundational to the transformation of the regulatory process. This paper compliments previous transformation recommendations[2] provided by NEI.

The NRC regulatory framework was established using sound safety-based principles to provide a foundation for assuring the safety of the U.S. operating power reactor fleet well before accumulation of extensive operating experience and before contemporary severe accident risk assessment models were developed. The industry ultimately owns the responsibility for plant safety and has a demonstrated track record for maintaining the tremendous safety record of the U.S. fleet[3]. The proposal in the white paper is to more comprehensively incorporate the research insights of the past 30 years to facilitate efficiency and effectiveness of the regulatory process.

Consideration of risk information is not intended to supplant the NRC's deterministic requirements (e.g. defense-in-depth, safety margin, fault tolerant designs, etc.), which help make compliance decisions

[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 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.

[2] NEI Letter, P. Cowan to D. Dorman, NEI Recommendations for NRC's Regulatory Transformation Initiative, dated March 16, 2018 and NEI Letter, W. Pitesa to H. Nieh, ROP Enhancement, dated September 19, 2018

[3] NEI Commission Briefing Presentation, Sustainable Use of Risk-Informed Regulation to Improve Plant Safety, May 11, 2017

relatively straightforward. Instead, risk information provides insight into the residual risk that remains once the regulations are met. As such, risk information helps determine the completeness and effectiveness of the existing deterministic regulatory framework. For example, risk assessment has identified holes or weaknesses in the deterministic fabric which should be rectified, such as in the case of 10 CFR 50.63, "Loss of all alternating current power," and conversely, identified areas where regulatory practices may overly constrain designs and operations, such as in the case of double-ended guillotine breaks in 10 CFR 50.46, "Acceptance criteria for emergency core cooling systems for light-water nuclear power reactors." Risk information has also been used to assess the benefit of additional safety requirements, such as in the case of the NRC's consideration of requiring filtered vents. A risk-informed regulatory approach that complements the deterministic regulations is the only practical means to make informed decisions on safety significance in an objective manner.

Results from state of the art studies performed by the NRC staff and industry consistently demonstrate that the margin of safety is substantial, and that residual risk is small. The information provided in the white paper, and the referenced EPRI work, illustrates the magnitude of the accumulated margin built into the plants and the regulations. We commend NRO's efforts[4] to recognize that safety significance is an important factor in focusing resources. By recognizing the significant margin to the NRC Safety Goals which currently exists and bringing the use of risk insights to the front of regulatory processes, the NRC and industry can better focus resource allocation toward issues of higher safety significance. We also believe that the enhanced understanding of plant safety and resulting margin can be employed in the licensing of new and advanced reactors and in security.

In closing, NEI would offer that in order to transform the regulatory process and ensure that NRC and industry attention is focused on the most safety significant issues; the NRC staff should acknowledge the large margin to the Safety Goals that exists across the U.S. fleet and apply risk-informed decision-making throughout the agency.

Sincerely,

Doug True

Attachment

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[4] Memorandum, F. Brown to New Reactor Business Line, Expectations for New Reactor Reviews, dated August 29,2018 (ML18240A410)