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## Gallagher, Carol

From: Sent: To: Subject:



Ancient Druid <ancientdruid1424@gmail.com> Thursday, February 27, 2014 10:27 PM Gallagher, Carol Comments: Proposed Risk Management Regulatory Framework

RULES AND DIRECTIVES

Below are comments I am submitting for NRC consideration on the NRC draft. White Paper on a proposed Risk Management Regulatory Framework (<u>ML13273A517</u>). I am submitting these comments as a private citizen and nuclear engineer.

\* It is encouraging and supportive for intelligent approaches to provide protection for the health and safety of the public that the NRC shows continued interest in a risk-informed performance-based (RIPB) Regulatory Framework. This is also an excellent opportunity to address the issues raised in the December 19, 2013, NEI letter to NRC Chair Macfarlane, "Industry Support and Use of PRA and Risk-Informed Regulation." Since the existing PRA Policy Statement is still the subject of misunderstanding within some parts of the NRC, any update to the PRA policy statement or any Risk-Informed Performance-Based Regulatory Framework needs to address how the cultural barriers to a realistic, best-estimate approach to risk-assessment will be addressed and overcome.

\* Realism in risk assessment needs to account for realistic operator actions in response to postulated events. For example, the highly trained nuclear industry operating staff is highly knowledgeable and capable of determining appropriate responses to upset conditions without necessarily having a highly presecriptive pre-existing procedural guidance to respond to every possible variation of the upset condition. This is particularly the case for shutdown conditions, where the response time requirements can be significantly less challenging due to lower decay heat levels during outage conditions.

\* While the White Paper proposes to "withdraw" the previous NRC PRA policy statement, what should occur is that the direction set by the previous policy statement should continue, but with details added and more texture added to the scope of the policy.

\* Any White Paper or Policy Statement with respect to a Risk Management Regulatory Framework needs to consider the costs involved in mitigation of risk. Insights obtained from PRA that identify risk reduction need to consider the fact that industry resources are limited, and there is a societal loss opportunity associated with a disproportionate diversion of funds for marginal decreases in risk. The costs associated with Risk Management measures and Defense-in-Depth measures need to be considered to ensure that the associated decreases in risk are commensurate with the effort and cost to achieve them.

\* It is a positive that the draft white paper recognizes that the level of Defense-in-Depth required will vary dependent dependent on the application and/or issue, especially that the White Paper recognizes that there would be some cases where there may not need to be any Defense-in-Depth measures.

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\* While it is necessary to account for the full scope of risks, it needs to be recognized that there is a difference in maturity level, conservatism, and uncertainty associated with various PRA aspects. For example, it needs to be recognized that there are greater uncertainties associated with phenomena such as Fire and Seismic than with an Internal Events risk assessment, in that the additional physical phenomenon associated with external events add to the uncertainty associated with Internal Events. It is imporant when addressing aggregate risk to maintain a realistic risk assessment, i.e., to not add conserverative bias to certain risk contributors that overestimate, on a best estimate basis, their contribution to risk. Rather, means to address uncertainty and ensure that there is adequate defense-in-depth should be developed and identified, to be used in conjunction with a realistic best estimate PRA to assess risk and ensure adequate safety in a robust manner.

\* Commitment to a Risk-Informed Regulatory Framework needs to be embraced by the NRC as a whole and in a holistic manner. For example, requirements for instrument uncertainty assumptions in License Basis Event analyses need not be as rigorous in the performance of Chapter 15 accident analyses or Chapter 6 containment analyses as in instrument setpoint methodology, as the challenge to risk in this example is much greater if the instrument fails to actuate than if there is some slight variance in input condition values for the performance of the analysis.

\* Risk-Informed Regulatory Frameworks naturally need to address different levels of risk than just current PRA metrics such as Core Damage Frequency and Large Early Release Frequency. For example, SAR Chapter 15 analyses do not involve Core Damage but have acceptance criteria which are stricter (e.g., clad damage (DNBR/MCPR) avoidance for AOO's) and only serve as input to PRA Initiating Event analyses, where additional failures are required to result in Core Damage. A risk-informed Regulatory Framework will need to address these higher-frequency lower-consequence events, perhaps through the defense-in-depth foundation of such a RIPB Regulatory Framework.

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