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10 CFR Part 53: Risk-Informed, Technology-Inclusive Regulatory Framework for Advanced Reactors

Comment On: NRC-2019-0062-0012

Preliminary Proposed Rule Language: Risk-Informed, Technology-Inclusive Regulatory Framework for Advanced Reactors

Document: NRC-2019-0062-DRAFT-0144

Comment on FR Doc # 2020-24387

Submitter Information

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General Comment

The attached letter provides comments on the PRA approach associated with the proposed 10CFR53 as well as a proposed solution to the growing regulatory overreach conflict between industry and the NRC. In summary, as we have formally stated in the past, the regulatory overreach concerns extend into numerous other areas currently contained in the draft 10CFR53 document, but not associated with DBE/DBA arena. Examples include: plant safety programs, ALARA programs, and similar activities well removed from protecting the public from hazardous radiation exposure.

A straightforward solution to the serious overreach conflict lies along the following path:

a. Simply define in 10CFR53 that defense-in-depth is fundamentally associated with Design Basis Events/Accidents.

b. Embed in the introductory portion of 10CFR53 the overarching concept that regulatory activities involving DBE's/DBA's considerations involve NRC approvals while those associated with AOO's lie with NRC acceptances of licensing materials.

The approach is high-level in nature, avoids overly prescriptive guidance while formally establishing the principle of risk-informed proportional NRC licensing efforts. This simple compromise directly addresses the concerns of both industry and the NRC staff. We request that the NRC seriously consider this conciliatory solution that will accelerate the 10CFR53 development effort and short-circuit the growing, but avoidable, conflict.

Attachments

Hybrid Pwr to NRC 10CFR53 Aug 25 2021

Michael F. Keller
President
Hybrid Power Technologies LLC



August 25, 2021
10CFR53

Mr. John Tappert
Director, Division of Rulemaking, Environmental, and Financial Support
Office of Nuclear Material Safety and Safeguards
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Subject: Hybrid Power Technologies LLC Input on the NRC Rulemaking Plan on, Risk-Informed, Technology-Inclusive Regulatory Framework; Proposed 10CFR53.

Mr. Tappert:

The purpose of this letter is to reiterate our grave concerns over the extensive regulatory overreach embedded in the current draft version of 10CFR53 “Licensing and Regulation of Advanced Reactors”, with emphasis on the ramifications of excessive use of Probabilistic Risk Assessments (PRA).

The NRC public meeting of August 17, 2021 concerned the Technology Inclusive Content of Application Project, including discussions of the **Ref. (1)** proposed industry standard for Safety Analysis Report (SAR) content, which includes Probabilistic Risk Assessment (PRA) information.

By way of background information, defense-in-depth is a long established philosophy to help mitigate the risk to the public from exposure to hazardous radiation potentially emitted by nuclear power reactors. In a practical context, defense-in-depth is fundamentally associated with Design Basis Events/Accidents (DBE/DBA’s).¹ One of the tools that can be used to evaluate the strength of defense-in-depth is a Probabilistic Risk Assessment (PRA).

The documents presented in conjunction with the reference public meeting included proposed industry guidance on the use of PRA’s, including guidance on the reporting of the PRA results in the Safety Analysis Report (SAR) that supports licensing activities.

Our basic concern lies with overuse of the PRA in the arena of Anticipated Operational Occurrences (AOO’s), thereby further fueling unnecessary regulatory overreach into plant design and operational activities, with the overreach emanating from new statutory requirements embedded in 10CFR53. The limiting AOO’s are fundamentally associated with undue public radiation exposure, but the level of public risk is vastly lower than that associated with the limiting DBE/DBA’s.

The concept of defense-in-depth is fundamentally not a rigorous concern for AOO’s because the severity of the incidents is inherently quite unlike those of limiting DBE’s. A reasonable level of defense should be quite adequate for AOO’s, including the use of codes/standards, quality assurance/control measures, and operational measures more typical of those used with power plants, as opposed to the rigorous standards used with DBE/DBA protection/mitigation.

Michael F. Keller
President
Hybrid Power Technologies LLC



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A reasonable expectation is that PRA efforts associated with AOO's should be proportionately much less rigorous than those used in the DBE/DBA arena. A more granular PRA should be adequate. Similarly, SAR related AOO PRA information should also be summary level in nature. In our view, the complexity of the **Ref. (1)** industry PRA guidance and associated NRC guidance documents is not proportional to the underlying AOO level of risk, with the guidance documents tending to fuel the regulatory overreach problem.

As we have formally stated in the past, the regulatory overreach concerns extend into numerous other areas currently contained in the draft 10CFR53 document, but not associated with DBE/DBA arena. Examples include: plant safety programs, ALARA programs, and similar activities well removed from protecting the public from hazardous radiation exposure.

A straightforward solution to the serious overreach conflict lies along the following path:

- a. Simply define in 10CFR53 that defense-in-depth is fundamentally associated with Design Basis Events/Accidents.
- b. Embed in the introductory portion of 10CFR53 the overarching concept that regulatory activities involving DBE's/DBA's considerations involve NRC approvals while those associated with AOO's lie with NRC acceptances of licensing materials.

The approach is high-level in nature, avoids overly prescriptive guidance while formally establishing the principle of risk-informed proportional NRC licensing efforts. This simple compromise directly addresses the concerns of both industry and the NRC staff. We request that the NRC seriously consider this conciliatory solution that will accelerate the 10CFR53 development effort and short-circuit the growing, but avoidable, conflict.

Regards,

Michael F Keller

Michael F. Keller Professional Engineer – State of Kansas
President
Hybrid Power Technologies LLC

References:

- (1) Technology Inclusive Guidance for Non-Light Water Reactor Safety Analysis Report: Content for a Licensing Modernization Project-Based Affirmative Safety Case, Document Number SC-16166-104 Rev E (NRC ML 21215A577)

Endnotes

1. *Limiting DBE/DBA's are those incidents that delineate the boundary of the dose/probability curve used to define the acceptable region of AOO's and DBE/DBA's. These limiting incidents should be described in the SAR in an overview fashion. Incidents within the boundary interior are not particularly relevant to the SAR, but detailed incident information can be obtained through audit/review of the PRA documentation.*