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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

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Comment on FR Doc # 2020-24387

Submitter Information

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General Comment

Attached please find observations on PRA's and 10CFR53

Attachments

Hybrid Pwr 10CFR53 Observation on PRA June 4 2021



NRC 10CFR53 draft

June 4, 2021

US Nuclear Regulatory Commission
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: Development of 10CFR53 – Observations on PRA's

We have been following the development of the proposed 10CFR53 relative to the use of Probabilistic Risk Assessments, their use and the depth of the effort. As currently configured, 10CFR53 appears to include a wide variety of advanced reactors that run the gamut from walk-away, passively fail-safe to those requiring active measures to prevent or mitigate hazardous radiation exposure by the public.

Presumably, the depth of the PRA effort should be commiserate with the level of risk to the public. However, we are uncertain as to whether or not 10CFR53 contains clear formalized “off-ramps” for allowing the use of simplified PRA's for passively fail-safe designs. The absence of such a mechanism creates the opportunity for regulatory ratcheting into full scope PRA efforts normally reserved for complex nuclear plants employing active safety-related functions. We suggest that for the passively fail-safe advanced reactors, the scope of the PRA be limited to items carrying out Safety-Related functions and items that protect the Safety-Related group. A similar simplification of the PRA should be sanctioned for use with on-going power plant operations involving passively fail-safe advanced reactors.

There is also the matter of when in the licensing process the PRA is required and to what depth. In our view, a preliminary PRA should be adequate early in the process, with a final PRA required prior to approval for plant operation. In concept, such an approach parallels Preliminary and Final Safety Analysis Report mechanisms of 10CFR50. In any case, 10CFR53 should keep this timing consideration simple and avoid overly lawyering the issue.

There is also the matter of whether or not a PRA is also required for public exposure to non-hazardous radiation releases. The risk to the public is nowhere near that associated with limiting design basis events and as such a PRA is unnecessary as reliance on engineered systems and plant administrative controls should be adequate.

As a final observation, “peer review” appears to be more of a marketing ploy for services, as opposed to the “independently reviewed” mechanisms commonly employed in design activities - the PRA is just one of many design tools. Also, the depth of the “peer review” should be commiserate with the plant's fundamental level of risk. We suggest that for the passively fail-safe advanced reactors, “peer-reviewed” be replaced by “independently reviewed”.

While the proposed 10CFR53 is in a state of considerable flux, we hope that the finalized version contains clear and fundamental codified PRA requirements consistent with the level of risk. NRC guidance documents and industry standards can provide the appropriate implementation details.

This letter and our earlier correspondence form elements of an alternate and significantly less costly solution to that being pursued by the NRC to achieve licensing modernization by creating material changes to the Code of Federal Regulations. Our approach can be characterized as an evolutionary adaptation and modification of the existing rather than the disruptive and expensive restructuring approach envisioned by the NRC staff.

NRC 10CFR53 draft



June 4, 2021

Regards,

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President

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