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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-0175

Comment on FR Doc # 2020-24387

Submitter Information

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General Comment

Attached please find our letter of October 29, 2021 concerning proposed 10CFR53 subpart F staffing requirements as well as comments on an October 26, 2021 public meeting.

Attachments

Hybrid Pwr to NRC ltr Oct 29 2021 re 10CFR53 Subpart F

Michael F. Keller
President
Hybrid Power Technologies LLC



October 29, 2021
10CFR53: Subpart F and Overall Assessment

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 various requirements contained in the proposed 10CFR53 vastly exceed their counterparts in the existing Part 50 of the Code of Federal Regulations. Such complexity is clearly inconsistent and at odd with the REF. (1) Congressional Act directing modernization of the licensing process. In particular, the Act's "risk informed" considerations are being overridden by the NRC staff attempting to create unwarranted new requirements that are not commiserate with level of risk.

This letter is directed at the October 26, 2021 Public Meeting discussion primarily centered on REF. (2) which involves staffing.

The NRC staff is unquestionably creating new unwarranted requirements by employing convoluted logic tied back to the existing 10CFR50. In effect, the NRC staff is cherry-picking to justify adding long held desires, wishes, and guidance that does not belong in an upper tier regulation (Code of Federal Regulations) that historically is generally high-level in nature. Further, claims that the proposed 10CFR53 removes specific requirements associated with water reactors are somewhat disingenuous because the NRC staff is using that pretext to add all manner of new unwarranted requirements.

In particular, 10CFR50.34 involves the content of applications - technical information, while 10CFR50.54 involves the conditions of (operator) licenses. The proposed subpart F of 10CFR53 intermingles requirements for staffing and application content to justify the complexity of 10CFR53 Part F (staffing). Subpart F should properly parallel 10CFR55 requirements involving staffing – these existing 10CFR staffing requirements are actually not that complex and are easily detuned to filter out prescriptive requirements concerning the size of the control room staff.

The subject subpart F should be compacted into high-level requirements, with the onus placed on the designer/applicant/licensee to present and justify their approach for 10CFR53 compliance, including the methodology for developing their safety functions and proving that their safety functions are met by the design, construction, and operation of the plant.

Relative to staffing, a high-level requirement could be:

“Plant operational personnel associated with nuclear safety functions shall be appropriately properly trained, qualified and licensed and/or certified commiserate with the nuclear safety functions that they are required to effect or support. The licensee shall

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provide an operational program that delineates educational requirements, qualification methodology, applicability, training, status, medical requirements, record keeping and allied measures to insure that the facility's nuclear safety functions are properly effected and supported. The level of NRC review and approval shall be commiserate with safety function risk. Designs employing dynamic cores require NRC certification of key control room staff owing to unprecedented reactivity considerations involving proper reactor shutdown”

In passing, we note that operator miscues involving power production are invariably ultimately trumped by the standalone reactor protection system, with passive safety-related defense-in-depth plant features protecting the public from hazardous radiation. This situation is quite unlike conventional water reactors that absolutely rely on plant operators to protect the public. Because the collective features of passively fail-safe advanced reactors provide exceptional protection of the public, we do not see the need for the NRC staff's overly prescriptive requirements involving plant operators and support personnel.

With respect to the human factors portion of the proposed subpart F, such considerations involve the design/operation of the facility and should be properly addressed elsewhere in the appropriate sections of 10CFR53.¹ Further, the NRC staff is attempting to characterize all nuclear safety functions as essentially of equal merit, thus requiring equal application of human factors considerations. Stated differently, the NRC staff is improperly equating human factors considerations for Anticipated Operational Events and Design Basis Events. Nuclear safety functions are, in fact, graduated in terms of risk to the public and accordingly human factors considerations must also be commiserate with the level of risk. Similarly, the level of NRC staff involvement with human factors must also be commiserate with risk. The NRC staff's approach of equating AOO and DBE considerations flatly fails to comply with the REF. (1) Act.

During the subject public meeting, several individuals and organizations expressed concern over including water reactors in the 10CFR53, which is targeted at advanced reactors. We are of the opinion that such an inclusion is a major error because needless complexity and unintended consequences are introduced into 10CFR53. Both 10CFR50 and 52 have been developed expressly for water reactors and both regulations are well established. Advanced water reactors can readily employ either 10CFR50 or 52 regulations to implement risk informed considerations by using the exemption process contained in the regulations, with the REF. (1) Act serving as the justification. The NRC staff can readily grant such requests with the REF. (1) Act also serving as the justification. Such a path is available now and does not require the use of 10CFR53.

As we have repeatedly advised, the most efficient and cost effective method to implement the REF. (1) Act is to employ the fundamental relevant elements of the existing 10CFR50 (and/or 52) while providing high-level requirements necessary to properly and simply delineate high-level risk informed considerations. The approach we recommend readily complies with the precepts for altering the Code of Federal Regulations, while the existing NRC staff approach does not. Our

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proposed approach could have been quickly accomplished a year ago, as we previously advised. In passing, we note that the USS Nautilus was conceived of, designed and built over the course of about 4 years. Appears to be about the same time period for development of 10CFR53, which is nothing more than paper. Pretty disheartening.

The 10CFR53 development path the NRC staff embarked upon more than two years ago involves the creation of a completely new CFR for advanced reactors, as acknowledged by the NRC staff.² The ensuing increased complexity relative to the current process is fundamentally at odds with the REF. (1) Act. We previously advised in the fall of 2020 that the NRC staff's approach was a strategic blunder of epic proportions. The NRC staff's 4+ year deployment time amply proves our point. The ramifications of the blunder are seriously impacting the ability to move U.S. advanced reactors forward, with many firms simply opting for Canada where the regulatory approach is much more rational. Other firms are pursuing using the existing 10CFR50 and 52, with nearly all firms viewing the NRC staff's 10CFR53 approach as hopelessly flawed. We view this whole debacle as a failure on the part of the NRC management to set proper strategic direction, with the "committee" approach being pursued yielding predictably poor results.

In closing, I would like to address a remark made at the close of the subject meeting to the effect that the NRC seriously considers all comments and observations made by the public and stake holders. There is not a lot of evidence to support such a claim, given the sparse number of NRC staff replies as well as 10CFR53 alterations made in response to the very large number of formal questions, observations, alternative language proposals and allied suggestions submitted by the public and stake holders.³ Further, in our opinion, the NRC staff's silence promotes abuse of regulatory authority because the NRC staff can easily stifle the public and stake holders who disagree with the NRC staff's position.⁴ The problem becomes exceptionally acute when claims of non-compliance with the REF. (1) Congressional Act are made because of the ensuing unsettling implications involving defiance of the law by the NRC staff. Further, resolution of these potentially very serious issues is kicked down the road and likely to reemerge at a point in time that will gravely impair the deployment schedule for 10CFR53.⁵ Such a situation does not serve the strategic interests of the nation.

We are somewhat hopeful that a proper 10CFR53 will be the end result of the development effort.

Regards,

Michael F Keller

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

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References:

- (1) Nuclear Energy and Modernization Act, S512 enacted into law.
- (2) [ML21288A403](#) - 10/26/2021 PART 53 RISK-INFORMED, TECHNOLOGY-INCLUSIVE REGULATORY FRAMEWORK FOR ADVANCED REACTORS RULEMAKING SUBPART F, REQUIREMENTS FOR OPERATIONS, SECTIONS RELATED TO STAFFING, TRAINING, PERSONNEL QUALIFICATIONS, AND HUMAN FACTORS

Endnotes

1. *The NRC staff is attempting to insert unwarranted and ill-suited requirements that are not relevant to the issue at hand. Further, such insertions are regulatory overreach on an alarming scale. This is an all too common approach used by the NRC staff throughout the proposed 10CFR53.*
 2. *The NRC staff appears to be justifying their 10CFR53 approach by citing the November 6, 2021 notice in the Federal Register. No one could have possibly reasonably anticipated the depth of the NRC staff's massive and unwarranted actions, particular as they relate to ignoring the REF. (1) enabling Act.*
 3. *The NRC staff claimed during the subject meeting that the legal basis for not responding in a timely fashion to formal public and stake holder formal comments and concerns lies with the November 6, 2020 notice in the Federal Register. We can find nothing in that notice to support the NRC staff's claim.*
 4. *An example of the consequences of the NRC staff's radio-silence policy follows:
NRC staff meeting notices and materials are generally posted a few days before the meeting. Such a time frame is grossly insufficient to critically analyze the material. Post-meeting careful review and analysis invariably generates questions and concerns that must be submitted through regulations.gov (a reasonable communication approach). However, the NRC staff's policy of subsequent silence means that the submitted questions and concerns are never formally addressed. This situation reinforces the belief that the NRC staff is attempting to ram through their version of 10CFR53. We have requested on numerous occasions (through the meeting feedback forms) that the NRC staff provide earlier posting of meeting material. We have seen little change. Our conclusion is that the NRC staff is indeed attempting to improperly ram their version of 10CFR53 past the public and stakeholders.*
- Regardless of whether or not actions of the NRC staff are nefarious or unintentional, the impact is the same: stifling of the public and stakeholders who disagree with the NRC staff. We are of the opinion that this situation is a clear abuse of regulatory authority.*
5. *We propose a future public meeting to discuss major issues that threaten to derail the timely deployment of 10CFR53. The NRC staff would ask all parties to forward their high-level issues that would then form meeting slides prepared by the concerned parties. Sufficient lead time would be provide to allow organizations and the public to craft high-level concerns and potential solutions. The intent is to reach an agreement in principle to diffuse major issues and potentially accelerate the effort.*