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

Comment On: NRC-2019-0062-0310

Risk-Informed, Technology-Inclusive Regulatory Framework for Advanced Reactors

Document: NRC-2019-0062-DRAFT-0398

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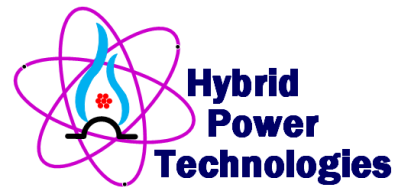
General Comment

Proposed 10CFR52.870 Proposed Integrity Program See our attached letter.

Attachments

Hybrid PWR to NRC 10CFR53 Integrity Program

Michael F. Keller
President
Hybrid Power Technologies LLC



January 6, 2026
Regulations.gov NRC-2019-0062-0310

Mr. Christopher Regan
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: Integrity Program - Proposed 10CFR53.870,

The Nuclear Regulatory Commission (NRC) has requested comments on the proposed risk-informed, performance-based, and technology-inclusive regulatory framework for commercial nuclear plants known as Part 53 of the Code of Federal Regulations (CFR). This correspondence involves the Integrity Program, as identified in the subject of this letter.

We are providing an overall opinion on the proposed Integrity Assessment Program as well as specific comments and recommended alterations, as contained in attachment (1).

As a general remark, there are no requirements in the existing 10CFR50 for Integrity Assessment Programs. The NRC Staff has manufactured completely new requirements.

Our position is that the industry standard American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code already provides for acceptable comprehensive approaches for reducing risks associated with ongoing degradation issues involving operational reactors. The NRC Staff's proposed program overrides the well proven expertise of the ASME Code while providing no discernable acceptance criteria, unlike the ASME Code. The apparent impetus for the NRC staff's proposal is troubling, as discussed in attachment (1). In effect, the NRC Staff is questioning the validity of the ASME Code. The NRC Staff's proposed Integrity Assessment Program will inflict massive unwarranted burdens and costs on applicants while failing badly to improve the efficiency of the regulatory process, as directed by the U.S. Congress.

We are of the opinion that the NRC Staff's proposed program is of doubtful legality because: (1) there is no justification for or linkage to any meaningful risk improvement; (2) the ASME Code already provides for the issue; (3) the Modernization Act of 2019 clearly directs the NRC to cooperate with industry to develop codes/standards; and (4) the ASME Code is developed in close cooperation with the NRC, as NRC Executives have stated publically on many occasions.

The proposed 10CFR53 should simply state that an In-service Inspection effort in accordance with the ASME Code is required for Safety Related components and more broadly the use of the ASME Code is required for all reactors.

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Regards,

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A small business of the state of Kansas developing patented advanced reactor energy plants.

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Attachment (1): Detailed Comments – Proposed Integrity Program

This correspondence constitutes notification that our firm has standing in this matter and is likely to suffer serious financial harm if the regulation is enacted as currently constituted. Suggested remedies are included in this correspondence.



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Attachment (1): Detailed Comments – Proposed Integrity Program.

Recommended changes are in ~~strikethrough~~ and **CAPS**, Original proposed CFR

§ 53.870 ~~Integrity assessment~~ **IN-SERVICE INSPECTION** programs.

Each holder of an OL or COL under this part must develop, implement, and maintain an ~~integrity assessment~~ program to monitor, evaluate, and manage **THE ONGOING FITNESS FOR OPERATION OF KEY COMPONENTS**—

(a) ~~The effects of plant aging on SR and NSRSS SSCs. The program may refer to~~ **INVOLVES** surveillances, tests, and inspections conducted, for specific **SAFETY-RELATED SSCS EMPLOYED IN CONJUNCTION WITH PROTECTING THE PUBLIC FROM HAZARDOUS RADIATION (SECTION 210) WITH THE PROGRAM** in accordance with ~~other requirements in this part or conducted in accordance with the~~ **ASME BOILER AND PRESSURE VESSEL CODE** or other applicable **THE USE OF OTHER** consensus codes and standards require specific **APPROVAL** acceptance endorsed or otherwise found acceptable by the NRC.

(b) ~~Cyclic or transient load limits to ensure that SR and NSRSS SSCs are maintained within the applicable design limits; and~~

(c) ~~Degradation mechanisms related to chemical interactions, operating temperatures, effects of irradiation, and other environmental factors to ensure that the capabilities, availability, and reliability of SR and NSRSS SSCs demonstrate compliance with the functional design criteria of §§ 53.410 and 53.420.~~

§ 53.870 NRC Staff Justification The proposed § 53.870 would require licensees to actively assess possible degradation of SSCs from the effects of aging, fatigue, and environmental conditions. The proposed inclusion of requirements related to designing and monitoring for possible degradation mechanisms reflects important lessons learned from the history of LWRs and the likely introduction of new design features and materials in future commercial nuclear plants. The allowable combinations of design features, operating experience, testing, and monitoring during operations would support performance-based approaches to the initial licensing of new technologies. The proposed performance-based approach to integrity assessment programs would also allow for the subsequent consideration of operating experience and appropriate corrective actions or allowable relaxations for ensuring that design features comply with the proposed functional design criteria of §§ 53.410 and 53.420. The proposed program would be based upon a comprehensive and integrated evaluation of the aging and other degradation mechanisms applicable to the design; identification of the affected SSCs; the allowances provided in the design of the SSCs for degradation; and schedules and procedures for determining if and at what rate degradation is occurring, as well as its cause. Risk insights could be used to prioritize the monitoring, evaluation, and management of degradation based upon the importance of the SSC to safety and the time frame for when the effects of degradation could be of concern.

HybridPwr comment: The Nuclear Modernization Act clearly directs the use of risk-informed licensing. The proposed program is decoupled from risk in the sense that (1) the assumption is made that significant danger to the public must flow from the specific mechanisms identified and (2) no existing measures exist to alleviate the claimed problem. In point of fact, the ASME Code already properly deals with such issues. The NRC Staff is overriding the historically well proven expertise of the ASME Code (collectively including Sections: I Power Boilers, II Materials, III Nuclear Facility Components, V Nondestructive Examinations, VIII Pressure Vessels, IX Welding Brazing Qualification, and XI Nuclear In-service Inspection, and various other ASME standards). In effect, the NRC Staff is questioning the validity of the ASME Code.

The NRC Staff is imposing requirements that are effectively impossible to meet. The simplest remedy is to impose the use of the ASME Code on all reactors with the stipulation that the use of other codes/standards require explicit NRC approval, with the applicant providing the necessary funds for the NRC to accomplish such an effort, although we suspect that may actually occur as a result of the NRC review process.

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Based on historical information, we suspect some form of professional issue may be the driver behind NRC staff's apparent attempts to essentially override the ASME Code. The expertise lies with the ASME Code, not the NRC Staff. Further, concerns on the matter have previously been formally presented in conjunction with earlier comments on guidance documents. The NRC Staff's response appears to be an attempt to add (likely illegally in our view) the guidance into the Code of Federal Regulations.

Also, there is no compelling risk-significant reason to employ formal top-tier regulatory efforts (tied to § 53.210), with In-service Inspection Programs involving less important SSC's (tied to § 53.220), which are, in any, case subject to various industry codes/standards and other defense-in-depth measures that constitute on-going methods to insure equipment is operationally fit for the intended application.

As noted in our letter of January 6, 2025 subject: "Safety Criteria Anomaly – Proposed 10CFR53.210", we have strongly stated that the Safety Related definition must include barriers for retention of nuclear material.

In our opinion, the NRC Staff is imposing illogical requirements that wash through all facets of the regulatory process. Such a tactic is in-and-of-itself outside the law (see Michigan v. EPA, 576 U.S. 743, 750 (2015) concerning reasoned decision making)

In conclusion, the staff's proposed Integrity Assessment Program will inflict massive unwarranted burdens on applicants while being of doubtful legality under the Nuclear Modernization Act of 2019 relative to the use of risk informed licensing approaches and consensus industry codes/standards. The ASME Code has been (1) overwhelming historically successful in dealing with matters involving design, construction, and operation of reactors and (2) already properly manages the issues raised by the NRC Staff.

Direct linkage to the ASME Code is the most efficient regulatory approach to deal with this matter.

In passing, the ASME Code, by state statutes, is required in nearly all 50 states.

§ 53.1239 Contents of applications for standard design certifications; technical information.

(13) ~~Integrity Assessment Program~~. **IN-SERVICE INSPECTION** A description of ~~THE—a design integrity assessment program that addresses the elements described in § 53.440(d).~~

NRC Staff Justification: None provided

HybridPwr comment: There is virtually nothing in the current 50.34 or any part of the current 10CFR50 concerning Integrity Programs. The NRC Staff is apparently attempting to impose unwarranted, exceptionally burdensome new requirements that are inconsistent with the risk-informed directive of the Nuclear Modernization Act of 2019. Specifically, there is no linkage to any meaningful reduction in risk relative to simply using the ASME code as currently done. Replace with In-service Inspection which is the method already routinely and successfully used with existing nuclear power plants. See our comment under § 53.870.

§ 53.1369 Contents of applications for operating licenses; technical information.

(d) ~~Integrity assessment~~ **IN-SERVICE INSPECTION** ~~program. A description of an Integrity Assessment Program~~ that addresses the elements described in § 53.870.

NRC Staff Justification: Proposed § 53.1369 would provide requirements for the technical content of applications for OLs to be included in the FSAR and is equivalent to § 50.34(b) but has been modified to align with the technical requirements in part 53. It would require that the FSAR include and, as needed, update information provided in the PSAR that was submitted and reviewed to support the associated CP application.

HybridPwr comment: See our comment under § 53.870.