



**UNITED STATES
NUCLEAR REGULATORY COMMISSION
ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
WASHINGTON, DC 20555 - 0001**

November 22, 2022

The Honorable Christopher T. Hanson
Chair
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

SUBJECT: FINAL LETTER ON DRAFT 10 CFR PART 53 RULEMAKING LANGUAGE

Dear Chair Hanson:

During the 700th meeting of the Advisory Committee on Reactor Safeguards (ACRS), November 1-4, 2022, we completed our review of staff's efforts on developing draft rulemaking language for Title 10 of the *Code of Federal Regulations* (10 CFR) Part 53 (the Rule).

This is our fifth letter on the Rule. In this report, we focus on changes to the Rule: (a) the new preamble, (b) changes to draft language for Frameworks A and B, (c) changes to proposed regulatory guides and (d) new interim staff guidance, all of which will be sent out for public comment in 2023. This letter was informed by discussions during our Regulatory Rulemaking, Policies and Practices: Part 53 Subcommittee meeting on October 18-19, 2022. During these meetings we had the benefit of discussions with representatives of the NRC staff and stakeholders. We also benefited from the referenced documents.

CONCLUSIONS AND RECOMMENDATIONS

1. The Rule package and associated guidance are adequate to solicit public comments:
 - Framework A is a viable logical framework that provides a flexible technology-inclusive performance-based regulatory pathway for light water reactors (LWRs) and non-LWRs.
 - Framework B is newer and still evolving; significant changes may still occur.
2. As staff finalizes this package, they should consider the comments in this letter, such as the following:
 - The Alternative Evaluation for Risk Insights (AERI) approach should be expanded beyond the Rule and made available for applicants to pursue under 10 CFR Parts 50 and 52.

- The concept of a “self-reliant mitigation facility” needs a more succinct and consistent definition given its significance to operator licensing and its interrelationship with AERI.
- The Rule should explicitly mention that there will always be a human being maintaining oversight of an operating reactor, providing a last line of defense independent of design features.
- The discussion of defense-in-depth should be amplified to address more explicitly the possible role of inherent and passive characteristics in accident mitigation.

3. We look forward to meeting with the staff on the evolving rule language and guidance.

Overview

10 CFR Parts 50 and 52 were developed for LWRs. Currently, non-LWRs must use either 10 CFR Part 50 or Part 52 and apply for exemptions from certain LWR-specific requirements that are not applicable to their design. The Rule represents a technology-inclusive performance-based regulatory approach for both LWRs and non-LWRs.

As noted in our previous letters on this topic (listed in the Appendix), we have commented on both the structure and content of the Rule as it has been developed over the past two years. We have appreciated these interactions with the staff and their disposition of our comments during that time. In this final letter prior to the Rule being sent out for public comment, we provide comments and perspectives on the preamble, the Rule itself, draft Regulatory Guides (RGs) 1.254 and 1.255, and interim staff guidance (ISG) on operator licensing, operating staffing and scalable human factors engineering reviews.

Preamble: Comments

History. The preamble to the Rule provides the history of its development with a focus on the need for a technology-inclusive performance-based set of regulatory requirements for non-LWRs. It provides the rationale behind the development of the two frameworks (Framework A and B) in the Rule. We observe 10 CFR Part 53 is not limited to non-LWRs. Applications for large and small modular LWRs may elect to use this new licensing pathway.

Framework A resulted from follow-on work to the Licensing Modernization Project (LMP) (as described in RGs 1.232 and 1.233) and uses a probabilistic risk assessment (PRA) as a major regulatory and design tool. In response to comments that Framework A would be unduly restrictive for some designs, Framework B was later developed using a more conventional deterministic technology-inclusive approach that is more consistent with 10 CFR Parts 50 and 52 and International Atomic Energy Agency regulatory guidance. PRA is used in a confirmatory role in Framework B to develop risk insights consistent with 10 CFR Part 52. Given the differences in philosophical approaches that underlie the two frameworks, the staff determined that it was not practical to combine them into one framework.

We note that the wording at the start of the preamble does not characterize Framework A as technology-inclusive. This oversight should be corrected.

Regulatory Bases for Requirements Implementation. In general, rule language should establish the requirement (the ‘what’) and guidance should provide an acceptable way of meeting the requirement (the ‘how’). In some cases, the requirements are established at a higher functional level to provide flexibility associated with being technology inclusive. The Rule contains a mixture of ‘what’ and ‘how’. Staff attributes this to the historical nature of some of the rule language borrowed from 10 CFR Parts 50 and 52.

The preamble clarifies the rationale behind the two frameworks in the Rule and establishes the regulatory bases behind the individual requirements. When requirements differ between the two frameworks, an explanation is provided consistent with the two different regulatory philosophies that underpin Frameworks A and B. When the requirements are the same, the preamble makes that clear. The preamble establishes a clear understanding of the depth of the differences in the requirements between the two frameworks.

As an example, consider how both frameworks treat mitigation of beyond design basis events. Although both frameworks contain requirements consistent with those in 10 CFR Parts 50 and 52, the manner in which they are addressed differs. In Framework A, licensing events are evaluated “holistically” ranging in frequency of occurrence from anticipated event sequences to rare event sequences. The evaluation of beyond design basis risks is integral to the process in Framework A. Design basis accidents are a subset of these licensing events. Framework B explicitly addresses additional licensing basis events outside the formal design basis, using a technology-inclusive approach, terms, and requirements parallel to those in 10 CFR Parts 50 and 52. Thus, the two different approaches are intended to provide equivalent levels of safety to existing regulatory frameworks.

Framework A: Ensuring a Comparable Level of Safety. The preamble provides valuable context relative to assuring that a technology-inclusive performance-based framework (Framework A) yields comparable levels of safety to the existing 10 CFR Parts 50 and 52 regulations. A finding of ‘reasonable assurance of adequate protection’ has been based historically on the broad collection of NRC regulations and guidance and not on simple quantitative criteria. To assure comparable levels of safety, Framework A provides an integrated assessment of plant risk and safety based on the principles of integrated risk informed decision-making as defined in RG 1.174:

- assessment of defense-in-depth,
- establishment of design requirements to assure adequate design margins for structures, systems, and components (SSCs) to handle both normal and off-normal situations,
- risk metrics to compare against the risk results from Framework A, and,
- programs to monitor performance and assure that uncertainties associated with lack of operating experience in advanced designs do not result in degradation of safety.

Finally, the staff cross-walked Framework A requirements against the existing set of 10 CFR Parts 50 and 52 regulations. Taken collectively, the staff concludes that the integrated assessment established in Framework A does provide a comparable level of safety to the existing NRC regulations. Furthermore, the tabletop pilot studies (performed on a variety of non-LWR designs using the LMP approach that underlies Framework A) found the approach to

be flexible and workable, did not set a higher regulatory bar for safety, and showed a way to incorporate risk insights into both the design and regulatory review. We agree with the staff assessment.

Comments on Technical Items. Section VII of the preamble requests input from the public on many specific technical items. Here we provide our comments and recommendations on a subset of those items:

- ***Defense-in-depth.*** The discussion in the rule language on defense-in-depth should be amplified to address more explicitly the possible role of inherent and passive characteristics of some SSCs in preventing or mitigating unplanned events. Many non-LWRs have passive and inherent safety characteristics but lack applicable operating experience and validated computer models, especially for beyond design basis phenomena. As a result, these safety characteristics may have to be relied upon in combination with engineering judgement and data from a robust start-up testing program.
- ***Seismic Requirements.*** The use of risk-informed seismic design approaches will provide applicants with additional flexibility in meeting seismic safety requirements.
- ***Manufacturing Licenses.*** Large changes have been made to the description of and requirements for manufacturing licenses. Given this is a new licensing pathway for potential microreactor designs, exercising prudence is wise until more experience is gained with (a) microreactor designs, (b) safety evaluations using the AERI approach of draft RG 1.255, and (c) the licensing pathway(s) that will be ultimately selected by applicants.
- ***Facility Safety Program.*** If the Facility Safety Program does improve NRC's overall regulatory program/process, it should be implemented under Framework B as well as Framework A. This program is intended to improve the efficiency of NRC's licensing and reactor oversight programs at the individual facility level.
- ***Integrity Assessment Program.*** The addition of safety requirements in the 10 CFR Part 53 Integrity Assessment Program is prudent to address potential degradation in SSCs early in life especially in view of the historical experience with LWRs and more importantly because of the lack of operating experience with new coolants in non-LWRs.

Rule Language: Comments

The definition of safety functions at the start of the Rule is helpful in establishing their importance to the overall regulatory framework. The other definitions unique to each framework provide clarity for their use in the Rule. Although we appreciate changes to accommodate a common safety function definition, we remain puzzled by language advocating the need for different approaches to determine safety functions for Frameworks A and B.

Framework A was initiated at the start of 10 CFR Part 53 rulemaking approximately two years ago. It has benefited from extensive stakeholder interactions related to its basic underlying philosophy derived from the LMP. As a result, only modest changes were made to the Rule

language in this latest revision. Consistent with previous recommendations in our letters of October 21, 2020, and May 30, 2021, it is a viable logical framework that provides a flexible technology-inclusive performance-based regulatory pathway for LWRs and non-LWRs.

There have been substantive improvements in Framework B. These include development of a risk-informed performance-based approach to siting, seismic design criteria and seismic design, and more technology-inclusive requirements related to fire protection and additional licensing basis events. Framework B now uses Framework A requirements for human factors engineering, staffing, operator licensing, and training.

However, Framework B is newer and is still evolving, as evidenced by the recent change in AERI entry conditions and ambiguity in the requirements for generally licensed reactor operators (GLROs) discussed later in this letter. Further, we anticipate significant changes to Framework B.

Additional Comments. The staff should consider additional changes as appropriate to address the following:

- ***Streamlining.*** In terms of streamlining the Rule, this may be a case of two options neither of which is very satisfactory. While it is true that the Rule is shorter in length than 10 CFR Parts 50 or 52, it may still be too long relative to many stakeholder expectations, which threatens the likelihood of its use. The staff emphasized that a tradeoff exists between clarity and overall rule length and that the staff chose clarity. We appreciate that the staff's latest revision did remove extraneous language and transferred some sections to guidance. Additional tightening of the language would be helpful.
- ***Safety Classification.*** The comment in our letter of August 2, 2022, on safety classification was meant to promote a hard look at simplifying this process. The historical process resulted in too many systems being classified as important to safety, but later found in the PRA to not have major risk significance. The comment was intended to optimize the "safety footprint" in a design, which would have major benefits for both the licensee and the regulator by keeping focus on risk significant components. This is especially important for designs with new technologies and little operating experience.
- ***AERI.*** The newly developed AERI entry condition should provide increased flexibility, but we caution this could inappropriately enable higher power/higher fission product inventory designs to use the AERI approach. A tabletop exercise using a range of technologies and thermal power levels should be conducted to evaluate this approach. In addition, staff has not yet finalized criteria regarding the degree of human action expected for an AERI facility as well its relationship to the GLRO. This is of concern due to its importance, for example in determining the type of license given to operators (Senior Reactor Operator (SRO)/Reactor Operator (RO) versus GLRO).
- ***Self-reliant Mitigation Facility.*** "Self-reliant mitigation facility" is an important concept in the Rule related to GLRO. The definition in 10 CFR Part 53 is as follows:

Self-reliant mitigation facility means a commercial nuclear plant design that demonstrates compliance with the operating and technical characteristics defined under § 53.800.

As used in Section 53.800, a self-reliant mitigation facility is one that can meet relevant acceptance criteria in Framework A or in Framework B without reliance on credited human interaction for event mitigation in the context of defense-in-depth, achievement of safety functions, and overall plant response. However, there is no additional information in guidance concerning the technical and operating attributes for this type of facility in terms of the degree of passive or inherent safety and the defense-in-depth characteristics necessary to preclude the need for reliance on credited human actions. The language used to describe the lack of the need for human action in the GLRO criteria for Framework A and for both licensing paths in Framework B is also not consistent, which can lead to confusion and misinterpretation. Additionally, consideration should be given to required regulatory options if, after licensing, it is discovered that a facility no longer meets criteria for being a self-reliant mitigation facility.

Finally, the use of the term “passive” is defined slightly differently each time it is used or implied. Succinct definitions of both terms (“self-reliant” and “passive”), and consistency in terminology regarding human action (used in multiple places in the Rule) would benefit the discussion of facility class and risk, making the reading of the rule language less burdensome.

- ***NRC Approval of GLROs.*** We generally support the concept of a GLRO. Section 53.745 requires that a person must be authorized by a license issued by the Commission to perform the function of an operator, senior operator, or GLRO. The proposed rule contains sufficient requirements and reference guidance to train and qualify GLROs; however, it is not clear how the Section 53.745 requirement is met for an individual that is a GLRO. Section 53.805(a)(5) requires that the facility report annually to the NRC the identity of all GLROs at the commercial nuclear plant, including all additions and deletions since the previous report. We recommend the NRC staff be required to approve additions to this list prior to an individual assuming GLRO duties. This provides an opportunity for the NRC to verify the requirements have been met for an individual qualified through the licensee training process.

Draft Regulatory Guides 1.254 and 1.255: Comments

The staff presented updates on Draft RG 1.254, “Technology-Inclusive Identification of Licensing Events for Commercial Nuclear Plants,” and Draft RG 1.255, “Alternative Evaluation for Risk Insights (AERI) Methodology.”

Draft RG-1.254. This draft RG offers important guidance for identifying initiating events, delineating event sequences, and selecting licensing events that can be used to inform the design basis, licensing basis, and content of applications for commercial nuclear plants. This guidance pertains to applications using a risk-informed approach as well as those using a traditional “deterministic” approach. The guidance emphasizes the notion of starting with a “blank sheet of paper” to prevent the carryover of assumptions about plant design and behavior and to break the tendency to focus on a predefined list of events (and identify events missing from such a list).

The draft RG provides an important table (Table 1, Licensing Pathways and Licensing Events) that cross-references some of the requirements and terms associated with licensing pathways for LWRs and non-LWRs. Footnotes to this table identify future staff actions related to the

requirements for 10 CFR Part 50 applicants. Specifically, Sections 50.34(a)(14) and 50.34(b)(14) will require all LWR and non-LWR applicants to provide a description of their plant-specific PRA and its results. Generally, this draft RG follows the discussions and information provided throughout the 10 CFR Part 53 development process.

- **10 CFR Part 53 applicability.** For non-LWRs under 10 CFR Part 50 or 52, RG 1.254 directs the designer to use RG 1.233 if they are applying the LMP methodology to determine licensing bases. RG 1.233 is solely for non-LWRs; however, RG 1.254 covers all technologies. The staff has committed to revise RG 1.233 to add 10 CFR Part 53 applicability. Hence, the synergies and scope of use, as well as the overlap of guidance should be carefully considered.
- **Chemical hazards.** The potential for non-radiological chemical hazards is explicitly stated to be outside the scope of this regulatory guide. Although this is understandable, it does leave potential designers without guidance should a severe chemical hazard overshadow the radiological hazards of some very low source-term facilities.
- **Licensing Basis Events (LBE) list development.** One thing missing from this draft RG is how an applicant should process the accident sequences or scenarios from a PRA to develop a final list of licensing events and design basis events. The guide points the user to Nuclear Energy Institute (NEI) 18-04, Revision 1. However, as we noted in our letter of May 30, 2021, that guidance is vague and needs improvement. NUREG-1860 defines a very clear process, but it is anchored to its own language. Guidance needs to be specialized to the language of NEI 18-04 and RG 1.233.

Draft RG-1.255. This draft RG provides guidance on using the AERI approach to develop risk insights to inform content of applications and licensing bases. Use of AERI also is expected to provide risk insights adequate for regulatory decision making. Draft RG 1.255 presently is aimed to be used with Framework B of the Rule. AERI requires that an applicant have an essentially complete design. The AERI risk evaluation must continue to be valid, paralleling the requirements for maintenance and upkeep of a PRA.

The use of AERI is limited to facilities that meet certain dose criteria without reliance on active safety features. Passive safety features can be relied on if they survive the accident, and they cannot be defeated by operator actions.

- **Applicability beyond 10 CFR Part 53.** The AERI methodology has merit for use in 10 CFR Parts 50 and Part 52 applications. Applicants of advanced plants that do not desire to use the Rule and, as a utilization facility, desire to be licensed under 10 CFR Parts 50 or 52, would benefit from use of such a methodology. While the AERI approach is not a formal PRA and as such appears to conflict with the requirement to perform a PRA in 10 CFR Part 52 (and 10 CFR Part 50 if the Parts 50/52 alignment and lessons learned rule¹ is approved), the risk insights gained through AERI should be expected to meet the intent of a PRA requirement.

¹ "Alignment of Licensing Processes and Lessons Learned from New Reactor Licensing," Docket No. NRC-2009-0196

It is understood that plants meeting the AERI criteria, as required in Section 53.4730, would probably benefit in using the entirety of the Rule due to other allowances for non-LWR designs. Therefore, wider application of the AERI methodology should be considered.

Interim Staff Guidance (ISG): Comments

Staff presented the latest update to Section 53.725, "General staffing, training, personnel qualifications, and human factors requirements." The update also includes proposed interim staff guidance on operator license programs, exemptions from licensed operator staffing requirements specified in 10 CFR Part 50, and development of scalable human factors engineering review plans. Generally, the changes were responsive to feedback that we provided in our letter of February 17, 2022, regarding consolidation of requirements for license operator qualification, removal of unnecessary guidance from the rule, and clarity on expectations for engineering expertise in support of the operators. As staff finalizes this text, they should consider the following suggestions:

- ***Dependency on Human Action.*** The continued development of passive design and inherent safety features reduces the dependency on human interaction with these machines and changes the role of the RO. However, we do not see any scenario where an RO is eliminated as a last line of defense (whether credited or not). The rule should be explicit that there will always be a human being maintaining oversight of an operating reactor and providing a last line of defense.
- ***Remote Operator.*** It is important that any concept involving a remote operator ensure there are independent and diverse means for the remote operator to perform the required functions, with special emphasis on cyber security. For example, any postulated failure that would require a remote operator to intervene should not also inhibit the ability of onsite operator intervention. We note that skilled operators develop an intuitive feel for the facility based not only on control room displays, but also using physical indicators such as smell, sound, vibration, and heat. Also, face-to-face interactions with operation support personnel with direct knowledge of ongoing onsite facility operations are critical. These physical attributes of operations are lost with remote operation.
- ***Required Operator Expertise.*** When considering the requirements for engineering expertise in support of operators, in addition to requiring technical degrees, there should be allowances to substitute relevant operational and industry experience for a formal degree program. The proposed guidance in Section 7.1, ISG-2023-02 provides a detailed description of the attributes and capabilities necessary to fulfill the objectives for this position. This can be used to evaluate the qualifications of an individual to serve in this role for the facility.
- ***Guidance for Exemptions.*** The guidance for exemptions from licensed operator staffing requirements parallels the content of NUREG-1791. The proposed additions and modifications to establish 10 CFR Part 53 guidance are well written. However, an amended version of Appendix A of NUREG-1791, "Review Checklists," is not included at this time. This checklist is detailed and useful for setting expectations for establishing quality staffing plans as well as justifying exemptions. Modification of this appendix for

10 CFR Part 53 application will not only benefit staff reviewers, but also help to strengthen applicants' understanding by detailing clear expectations for their proposed staffing plans.

Summary

10 CFR Part 53 is a new licensing pathway for both LWRs and non-LWRs. As currently configured, there are two frameworks for licensing. Both frameworks are technology-inclusive and performance-based, are intended to provide flexibility for a range of non-LWR technologies and missions and should reduce the need for exemptions to licensing requirements. The preamble does a very good job of explaining the rationale behind the two frameworks in 10 CFR Part 53 and establishes the regulatory bases behind the individual requirements contained therein. The Rule and its supporting documents are reasonable drafts and are adequate to submit for public comment. As staff finalizes this package, they should consider the comments in this letter. We look forward to future interactions with the staff on the evolving rule language.

No response to this letter is necessary at this time. Instead, we look forward to continuing discussions on these matters in future meetings.

Sincerely,



Signed by Rempe, Joy
on 11/22/22

Joy L. Rempe
Chairman ACRS

Appendix:
ACRS 10 CFR Part 53 Rulemaking Letter Reports

REFERENCES

1. U.S. Nuclear Regulatory Commission, "Risk-Informed, Technology-Inclusive Regulatory Framework for Advanced Reactors," Draft 10 CFR Part 53, Enclosure 1A: Preamble, Predecisional Document to Support ACRS Meeting, September 29, 2022. (ML22272A036)
2. U.S. Nuclear Regulatory Commission, "Risk-Informed, Technology-Inclusive Regulatory Framework for Advanced Reactors," Draft 10 CFR Part 53, Enclosure 1B: Section-by-Section Analysis, Predecisional Document to Support ACRS Meeting, September 28, 2022. (ML22272A038)
3. U.S. Nuclear Regulatory Commission, "Risk-Informed, Technology-Inclusive Regulatory Framework for Advanced Reactors," Draft 10 CFR Part 53, Enclosure 1C: Part 2 through Part 53 Framework A, Predecisional Document to Support ACRS Meeting, September 29, 2022. (ML22272A039)

4. U.S. Nuclear Regulatory Commission, "Risk-Informed, Technology-Inclusive Regulatory Framework for Advanced Reactors," Draft 10 CFR Part 53, Enclosure 1D: Framework B through 10 CFR Part 171, Predecisional Document to Support ACRS Meeting, September 29, 2022. (ML22272A040)
5. U.S. Nuclear Regulatory Commission, "Technology-Inclusive Identification of Licensing Events for Commercial Nuclear Plants," Draft Regulatory Guide 1.254, Predecisional Document to Support ACRS Meeting, September 28, 2022. (ML22272A042)
6. U.S. Nuclear Regulatory Commission, "Alternative Evaluation for Risk Insights (AERI) Methodology," Draft Regulatory Guide 1.255, Predecisional Document to Support ACRS Meeting, September 28, 2022. (ML22272A045)
7. U.S. Nuclear Regulatory Commission, "Operator Licensing Programs," Draft DRO-ISG-2023-001, Predecisional Document to Support ACRS Meeting, September 28, 2022. (ML22272A047)
8. U.S. Nuclear Regulatory Commission, "Draft Interim Staff Guidance Augmenting NUREG-1791, 'Guidance for Assessing Exemption Requests from the Nuclear Power Plant Licensed Operator Staffing Requirements Specified in 10 CFR 50.54(m),' for Licensing Commercial Nuclear Plants under 10 CFR Part 53," Draft DRO-ISG-2023-002, Predecisional Document to Support ACRS Meeting, September 28, 2022. (ML22272A049)
9. U.S. Nuclear Regulatory Commission, "Development of Scalable Human Factors Engineering Review Plans," Draft DRO-ISG-2023-003, Predecisional Document to Support ACRS Meeting, September 28, 2022. (ML22272A051)
10. U.S. Nuclear Regulatory Commission, "Domestic Licensing of Production and Utilization Facilities," 10 CFR Part 50.
11. U.S. Nuclear Regulatory Commission, "Licenses, Certifications, and Approvals for Nuclear Power Plants," 10 CFR Part 52.
12. U.S. Nuclear Regulatory Commission, "Developing Principal Design Criteria for Non-Light Water Reactors," Regulatory Guide 1.232, April 2018. (ML17325A611)
13. U.S. Nuclear Regulatory Commission, "Guidance for a Technology-Inclusive, Risk-Informed, and Performance-Based Methodology to Inform the Licensing Basis and Content of Applications for Licenses, Certifications, and Approvals for Non-Light Water Reactors," Regulatory Guide 1.233, June 2020. (ML20091L698)
14. U.S. Nuclear Regulatory Commission, "An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to the Licensing Basis," Regulatory Guide 1.174, Revision 3, July 2005. (ML17317A256)
15. Advisory Committee on Reactor Safeguards, Letter to Chairman Svinicki, U.S. Nuclear Regulatory Commission, "10 CFR Part 53, Licensing and Regulation of Advanced Nuclear Reactors," October 21, 2020. (ML20295A647)

16. Advisory Committee on Reactor Safeguards, Letter to Chairman Hanson, U.S. Nuclear Regulatory Commission, "Preliminary Proposed Rule Language for 10 CFR Part 53, 'Licensing and Regulation of Advanced Nuclear Reactors,' Interim Report," May 30, 2021. (ML21140A354)
17. Advisory Committee on Reactor Safeguards, Letter to Chairman Hanson, U.S. Nuclear Regulatory Commission, "Fourth Interim Letter on 10 CFR Part 53 Rulemaking Language," August 2, 2022. (ML22196A292)
18. Nuclear Energy Institute, "Risk-Informed Performance-Based Technology-Inclusive Guidance for Non-Light Water Reactor Licensing Basis Development," NEI 18-04, Revision 1, August 2019. (ML19241A472)
19. U.S. Nuclear Regulatory Commission, "Feasibility Study for a Risk-Informed and Performance-Based Regulatory Structure for Future Plant Licensing, Volumes 1 and 2," NUREG-1860, December 2007. (ML080440170 and ML080440215)
20. Advisory Committee on Reactor Safeguards, Letter to Chairman Hanson, U.S. Nuclear Regulatory Commission, "Preliminary Rule Language for 10 CFR Part 53, Subpart F, 'Requirements for Operations,' Interim Report," February 17, 2022. (ML22040A361)
21. U.S. Nuclear Regulatory Commission, "Guidance for Assessing Exemption Requests from the Nuclear Power Plant Licensed Operator Staffing Requirements Specified in 10 CFR 50.54(m)," NUREG-1791, July 2005. (ML052989125)

APPENDIX

ACRS 10 CFR Part 53 Rulemaking Letter Reports

<u>Letter Report</u>	<u>Date</u>	<u>ADAMS No.</u>
Letter to Chairman Svinicki, U.S. Nuclear Regulatory Commission, "10 CFR Part 53, Licensing and Regulation of Advanced Nuclear Reactors."	October 21, 2020	ML20295A647
Letter to Chairman Hanson, U.S. Nuclear Regulatory Commission, "Preliminary Proposed Rule Language For 10 CFR Part 53, Regulation of Advanced Nuclear Reactors, Interim Report."	May 30, 2021	ML21140A354
Letter to Chairman Hanson, U.S. Nuclear Regulatory Commission, "Preliminary Rule Language For 10 CFR Part 53, Subpart F, 'Requirements for Operations,' Interim Report."	February 17, 2022	ML22040A361
Letter to Chairman Hanson, U.S. Nuclear Regulatory Commission, "Fourth Interim Letter on 10 CFR Part 53 Rulemaking Language."	August 2, 2022	ML22196A292

November 22, 2022

SUBJECT: FINAL LETTER ON DRAFT 10 CFR PART 53 RULEMAKING LANGUAGE

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