



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

February 10, 2023

Joy L. Rempe, Chairman  
Advisory Committee on Reactor Safeguards  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555-0001

SUBJECT: RESPONSE TO THE ADVISORY COMMITTEE ON REACTOR  
SAFEGUARDS, "FINAL LETTER ON DRAFT 10 CFR PART 53  
RULEMAKING LANGUAGE"

Dear Chairman Rempe:

On behalf of the U.S. Nuclear Regulatory Commission (NRC) staff, I would like to thank you for the letter from the Advisory Committee on Reactor Safeguards (ACRS or the Committee), dated November 22, 2022 (Agencywide Documents Access and Management System Accession No. ML22319A104). That letter addressed the ACRS review of the NRC staff's efforts to develop alternative licensing frameworks for new commercial nuclear plants in the draft proposed rulemaking for Title 10 of the *Code of Federal Regulations* (10 CFR) Part 53, "Risk-Informed, Technology-Inclusive Regulatory Framework for Commercial Nuclear Plants" (Part 53; the Rule). I appreciate the time and effort that the ACRS continues to devote to this subject, as reflected in the constructive engagement with the NRC staff during numerous subcommittee and full committee meetings, including the most recent ACRS full committee meeting on November 2, 2022.

In its letter dated November 22, 2022, the ACRS recognized that the draft Part 53 proposed rule is technology inclusive and performance based, provides flexibility for a range of non-light-water reactor (non-LWR) technologies, and should reduce the need for exemptions to licensing requirements. In addition, the letter states, "The Rule and its supporting documents are reasonable drafts and are adequate to submit for public comment."

### Conclusions and Recommendations

The NRC staff provides the following responses to the three conclusions and recommendations in the ACRS letter:

1. The Rule package and associated guidance are adequate to solicit public comments:
  - a. Framework A is a viable logical framework that provides a flexible technology-inclusive performance-based regulatory pathway for LWRs and non-LWRs.
  - b. Framework B is newer and still evolving; significant changes may still occur.

**Staff Response:** The NRC staff agrees with the Committee that draft Rule package and associated guidance are adequate to solicit public comments. While the NRC staff made some changes to the alternative evaluation for risk insights (AERI) entry criteria between the ACRS subcommittee meeting on October 18-19, 2022, and full committee meeting on November 2, 2022, the majority of rule language in Framework B remained unchanged. Framework B remains rooted in the traditional licensing approaches under the existing regulatory structures in 10 CFR Part 50, “Domestic Licensing of Production and Utilization Facilities,” and 10 CFR Part 52, “Licenses, Certifications, and Approvals for Nuclear Power Plants,” including the use of principal design criteria (PDC) and the traditional use of risk insights. The revisions to the AERI entry conditions presented during the ACRS full committee meeting reflected the NRC staff’s continued consideration of stakeholder feedback and the agency’s own sensitivity calculations performed using the MELCOR Accident Consequence Code System by NRC staff in the NRC Office of Nuclear Regulatory Research.

2. As staff finalizes this package, they should consider the comments in this letter such as the following:
  - a. 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.

**Staff Response:** Other than conforming changes, revisions to 10 CFR Part 50 and 10 CFR Part 52 are beyond the scope of the ongoing Part 53 proposed rulemaking effort. However, the NRC staff will continue to assess the potential applicability and usefulness of the AERI concept to other technologies and regulatory areas and may pursue additional rulemakings and guidance development in the future. In addition, power reactor applicants can apply for an exemption under the current regulations to use processes similar to the AERI methodology.

- b. 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.

**Staff Response:** Following the November 2, 2022, presentation to the ACRS full committee, the NRC staff developed and incorporated a set of changes to the criteria associated with self-reliant-mitigation facilities. These changes included modifications to the Part 53 rule language and associated preamble discussion. Notably, these changes simplified the criteria of proposed Section 53.800, “Facility licensees for self-reliant-mitigation facilities,” such that both Framework A and Framework B now use a common set of criteria in making the self-reliant-mitigation facility determinations. The NRC staff discusses these changes in greater detail in the response to Additional Comment 6, below.

- c. 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.

**Staff Response:** The NRC staff agrees that maintaining requirements to have licensed operators is an important part of the enhanced flexibilities included in the Rule language. Under the Rule, applicants would need to demonstrate the adequacy of the proposed senior reactor operator (SRO) and reactor operator (RO) (i.e., specifically licensed operators) staffing through performance-based testing, particularly as it relates to any role that the operators might have in the fulfillment of plant safety functions and the accomplishment of any credited operator actions.

Additionally, the draft interim staff guidance, DRO-ISG-2023-01, “Operator Licensing Programs,” developed to support the review of the staffing plans for facilities licensed under Part 53, includes detailed operator staffing considerations, such as the potential need for a shift supervisor. For facilities staffed by generally licensed reactor operators (GLROs), applicants would need to meet a prescribed minimum degree of staffing, monitoring requirements, and operational capabilities for these operators; this includes the need for the continuous monitoring of fueled reactors. Whether applicants use specifically licensed operators or GLROs, either performance-based demonstrations or prescriptive minimum requirements would serve to ensure that there is always operator staffing overseeing facilities licensed under Part 53.

- d. The discussion of defense-in-depth should be amplified to address more explicitly the possible role of inherent and passive characteristics in accident mitigation.

**Staff Response:** The NRC staff agrees that additional guidance would be helpful in this area. The NRC staff plans to pursue the development of such guidance before issuance of the final rule.

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

**Staff Response:** The NRC staff will continue to interact with the Committee during the development of the final rule and supporting guidance. The NRC staff will also consider the ACRS comments and recommendations on the technical items addressed in Section VII, “Specific Requests for Comments,” of the draft *Federal Register* notice in concert with any input received during the public comment period.

### **Additional Comments**

In addition, the ACRS letter had comments on the following items:

1. **Preamble for Framework A.** The wording at the start of the preamble does not characterize Framework A as technology-inclusive. This oversight should be corrected.

**Staff Response:** The NRC staff agrees with the Committee’s comment. The NRC staff has revised the preamble to appropriately characterize Framework A as technology-inclusive.

2. **Safety Functions.** 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.

**Staff Response:** The NRC staff agrees that the identification and discussion of safety functions is important to commercial nuclear plant licensing. In the top-down approach of Framework A, a requirement to define safety functions early in the rule provides a basis for determining functional design criteria for safety-significant structures, systems, and components (SSCs). In Framework B, safety functions are intrinsically captured by the requirements to define PDC. As

described in the proposed safety function definition and the Part 53 preamble, the NRC staff believes that safety functions would be comparable under either framework. The NRC staff does not believe that it is necessary to require applicants to separately define safety functions under Framework B because they would be defined through the requirements to establish PDC. Regulatory Guide (RG) 1.232, "Guidance for Developing Principal Design Criteria for Non-Light-Water Reactors," issued April 2018 (ML17325A611), provides guidance that will be helpful for applicants in developing PDC for non-LWRs. The NRC staff plans to revise RG 1.232, which uses safety functions to group the design criteria making up the PDC, to include applicability to the proposed Part 53 Framework B.

3. **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.

**Staff Response:** The NRC staff will continue to look for opportunities to streamline the Rule as it develops the final rule.

4. **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 [probabilistic risk assessment] 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.

**Staff Response:** The NRC staff agrees that the classification of SSCs remains an important element of both frameworks in the proposed Part 53. Proposed Part 53 offers flexibilities to the designer on how to classify SSCs consistent with the role of the PRA in establishing safety functions. Framework A supports a classification process like that endorsed in RG 1.233, "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," issued June 2020 (ML20091L698), for non-LWRs licensed under 10 CFR Part 50 or 10 CFR Part 52. This guidance was developed, in part, to ensure appropriate treatment of SSCs that are either safety-related or non-safety-related but safety-significant. Framework B has maintained the existing 10 CFR Part 50 and 10 CFR Part 52 classifications of SSCs as safety-related or non-safety-related but important to safety. However, Framework B has improved the clarity and focus of these requirements by defining how the classification of SSCs relates to the various event categories in the proposed Part 53, Subpart R, "Licenses, Certifications, and Approvals."

5. **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 as relationship to the generally licensed reactor operator (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).

**Staff Response:** Following the November 2, 2022, presentation to the ACRS full committee, the NRC staff developed and incorporated a set of changes to the criteria associated with self-reliant-mitigation facilities. These changes included modifications to the draft proposed rule language and associated preamble discussion to address the ACRS concerns related to the relationship between an AERI facility and GLROs.

The NRC staff modified the criteria of proposed Section 53.800 of the Rule to address this issue by refining and clarifying the interplay between AERI qualification and classification as a self-reliant-mitigation facility for certain applicants under Framework B. In particular, applicants planning to use AERI must first show that the AERI entry criteria are met. If such an applicant also seeks to classify its facility as a self-reliant-mitigation facility and have GLROs, it must also demonstrate that the AERI entry criteria are met without reliance on credited human action. If the applicant demonstrates this, thereafter, the AERI analysis is treated primarily as a source of risk insights within the broader evaluation. The balance of the remaining criteria for classification as a self-reliant-mitigation facility then parallels those that apply for non-AERI facilities. The NRC staff discusses other aspects of these changes in the responses to Recommendation 2 and Additional Comment 6.

As part of the development of the final rule, the NRC staff will continue to evaluate the AERI entry conditions and consider any new technical information or feedback received through public comments. In the past, industry representatives have managed tabletop exercises in support of new licensing or evaluation methods, such as those performed to test the Licensing Modernization Project (LMP) process. The NRC staff will continue to engage stakeholders on the AERI approach and seek opportunities to assess and clarify the applicability of that licensing pathway.

6. **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.

- a. 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.

- b. 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.
- c. 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.
- d. 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.

**Staff Response:** Following the November 2, 2022, presentation to the ACRS full committee, the NRC staff developed and incorporated a set of changes to the criteria associated with self-reliant-mitigation facilities. These changes included modifications to the draft proposed rule language and associated preamble discussion to address concerns expressed by the Committee in Additional Comment 6.

The NRC staff modified the criteria of proposed Section 53.800 to focus the requirements on limiting reliance on operator intervention and susceptibility to operator errors. This approach makes the application of the self-reliant-mitigation facility criteria less prone to any ambiguities in the interpretation of terms such as “passive” and “inherent.” The NRC staff also explained the meaning of the terms “self-reliant-mitigation facility” and “interaction-dependent-mitigation facility” in the preamble of the Rule. These terms are included to clarify the relationship that operators and systems have in achieving safety for each of these facility classes.

Consistent with these changes to the Rule and the NRC staff’s response to Recommendation 2.d, the NRC staff acknowledges the need for guidance to help address the incorporation of passive design features and inherent characteristics of design features into the analyses used to justify design choices, including reliance on credited human actions, in areas such as defense in depth. The NRC staff plans to pursue the development of such guidance in parallel with its development of the final rule. Additionally, as noted above in the response to Recommendation 2.d, the requirements of proposed Section 53.800 have been simplified, such that both Framework A and Framework B now use a common set of criteria in making the self-reliant-mitigation facility determination. Finally, the requirements of proposed Section 53.805, “Facility licensee requirements related to generally licensed reactor operators,” of the Rule have been expanded. Specifically, self-reliant-mitigation facilities must continue to conform to the technical requirements of proposed Section 53.800 during operation. Failure to do so would constitute a reportable event (i.e., an unanalyzed condition).

7. **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.

- a. 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.
- b. 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.

**Staff Response:** Proposed Section 53.745, “Operator license requirements,” of the Rule states that a person must be authorized by a license issued by the Commission to perform the function of a GLRO. The general license for GLROs is contained under proposed Section 53.810, “Generally licensed reactor operators,” of the Rule. General licenses are issued by rule and authorize individuals who comply with the restrictions in the rule to act under the general license without obtaining a specific license. While this constitutes a different licensing mechanism (i.e., a general license) than that used for SROs and ROs (i.e., specific licenses) and does not require the submittal of an application by, nor the issuance of a license to, a named individual, this form of licensing still constitutes a license being issued by the Commission and conveys comparable authorities, responsibilities, and restrictions to individuals covered by its provisions.

The nature of a general licensing mechanism (i.e., applicability to a class of individuals) is incompatible with the use of an individual approval process on the part of the Commission. Additionally, the departure from the individual application approval process of specific operator licensing would be acceptable from a safety standpoint for facilities that qualify for GLRO staffing (i.e., safety-reliant-mitigation facilities). Additionally, the NRC staff expects that regular programmatic inspections would provide assurance of ongoing compliance by both the facility licensee and GLROs in accordance with the conditions and limitations of their respective licenses.

8. **Draft RG-1.254 (DG-1413).** 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).
  - a. **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 Part 53 applicability. Hence, the synergies and scope of use, as well as overlap of guidance should be carefully considered.

**Staff Response:** As noted in the response to Additional Comment 4, the NRC staff anticipates revising RG 1.233 to address proposed Part 53 applicability. However, it is important to note that RG 1.233 endorsed the LMP methodology in Nuclear Energy Institute (NEI) 18-04, Revision 1, "Risk-Informed Performance-Based Technology Inclusive Guidance for Non-Light Water Reactor Licensing Basis Development," issued August 2019 (ML19241A472); therefore, NEI is the originator of the source guidance for this RG. The NRC staff would revise RG 1.254 (currently Draft Regulatory Guide (DG)-1413, "Technology-Inclusive Identification of Licensing Events for Commercial Nuclear Plants" (ML22257A173)) to expand the use of RG 1.233 when its applicability is revised to include light-water reactors (LWRs). The NRC staff will continue to evaluate how to take advantage of the wide applicability of the guidance in RG 1.254 and expand its use to areas of nuclear reactor beyond the proposed rulemaking.

- b. **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 hazard of some very low source-term facilities

**Staff Response:** The release of hazardous chemicals is a regulatory concern to the NRC, but only to the extent that such releases of hazardous chemicals include substances comingled with licensed material, produced by a reaction with licensed material, or having the potential to adversely affect radiological safety. The inclusion in the proposed Part 53 of a specific requirement to address the risks to public health from potential chemical hazards of licensed material is appropriate given the diversity of reactor technologies and designs that might be licensed under Part 53. The proposed requirements to address chemical hazards in Part 53 would be similar to the existing requirements in 10 CFR Part 70, "Domestic Licensing of Special Nuclear Material," that address both potential radiological and chemical hazards from licensed materials at fuel cycle facilities.

The NRC staff has identified chemical hazards as an area for which additional guidance would be useful to delineate the roles of NRC requirements and those of other government agencies. NUREG-1520, Revision 2, "Standard Review Plan for Fuel Cycle Facilities License Applications," issued June 2015 (ML15176A258), and NUREG-1513, "Integrated Safety Analysis Guidance Document," issued May 2001 (ML031340285), describe experience and guidance on the treatment of chemical hazards in fuel cycle facilities, which could be leveraged for near-term commercial nuclear plant applications and related NRC reviews as well as for developing future guidance for Part 53.

- c. **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.

**Staff Response:** The NRC staff acknowledges that there is more work to do on guidance for LBE list development beyond the references made in Draft RG 1.254 (DG-1413). As discussed during previous ACRS meetings, including the October 18, 2022, subcommittee and November 2, 2022, full committee meetings, and in the responses to Additional Comment 4 and Additional Comment 8.a, the NRC staff anticipates revising RG 1.233 to include Part 53 applicability (including language specialized to the terminology in Part 53) after the publication of the proposed Part 53 and guidance on how to select LBEs using the results of the PRA.

9. **Draft RG-1.255 (DG-1414).** This draft RG provides guidance for use of AERI approach to develop risk insights to inform content of applications and licensing basis. Use of AERI also is expected to provide risk insights adequate for regulatory decision making. RG 1.255 presently is aimed to be used with Framework B of the Rule. 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.

- a. **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 rule is approved), the risk insights gained through AERI should be expected to meet the intent of a PRA requirement.

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.

**Staff Response:** As noted in the NRC staff's response to Recommendation 2.a, other than conforming changes, modifications to 10 CFR Part 50 and 10 CFR Part 52 are beyond the scope of the Part 53 rulemaking effort. However, the NRC staff will continue to assess the potential applicability and usefulness of the AERI concept to other regulatory areas and may pursue additional rulemakings and develop guidance in the future to expand its use. In addition, 10 CFR Part 50 and 10 CFR Part 52 power reactor applicants can apply for an exemption to use processes similar to the AERI methodology.

**10. Interim Staff Guidance (ISG).** 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:

- a. ***Dependency on Human Action.*** The continued development of passive design and inherent safety features reduces the dependency on human interactions with these machines and changes the role of the reactor operator. We acknowledge and accept this eventuality. However, we do not see any scenario where the operator 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.

**Staff Response:** As discussed in greater depth in the response to Recommendation 2.c, while there are variations in how operators are licensed given the enhanced staffing flexibilities that are provided in the Rule, currently, there is no pathway for a facility to be approved for operation with no licensed operator staffing.

- b. ***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.

**Staff Response:** The draft proposed requirements in Subpart F, “Requirements for Operations,” allow for flexibilities in concepts of operations that do not explicitly constrain operators to specific locations. This is intended to provide for a framework that is readily adaptable to future concepts of operations. Nonetheless, an applicant seeking to implement remote operations would need to meet applicable regulations; matters of cybersecurity and how safety functions would be reliably fulfilled under such a model would have to be settled matters. More specifically, significant issues remain to be resolved to allow for remote operation based only on the proposed Part 53 requirements. For example, an applicant pursuing a remote operations approach under Part 53 for a plant using specifically-licensed operators (SROs and ROs) would

need to demonstrate the ability of operators to fulfill safety functions during performance-based tests (e.g., validation scenarios using a simulator). Similarly, for plants employing GLROs, an applicant would need demonstrate that the plant design does not require an operator to fulfill safety functions.

- c. **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.

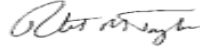
**Staff Response:** The NRC staff has given careful consideration to this matter and its perspective remains that the existing Commission policy regarding the value of degreed expertise on shift should be carried forward into the proposed Part 53. Additionally, the degree requirement for available on-shift engineering expertise allows the control room operating crew to have a mix of education and experience backgrounds, such as SROs with technical degrees and ROs with substantial hands-on operating experience. Operators with relevant operational experience and operators or other available licensee staff with academic experience from a technical degree program complement each other in a way that supports the fulfillment of facility safety.

- d. **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.

**Staff Response:** The NRC staff agrees with the Committee's recommendation for improving the draft interim staff guidance document, DRO-ISG-2023-02, that augments NUREG-1791, "Guidance for Assessing Exemption Requests from the Nuclear Power Plant Licensed Operator Staffing Requirements Specified in 10 CFR 50.54(m)," issued July 2005 (ML052080125), for the purpose of reviewing proposed Part 53 staffing plans. The NRC staff intends to develop review checklists similar to those included in appendix A to NUREG-1791 following any changes made to the draft guidance during the public comment period. The NRC staff plans to include review checklists in the version of the guidance document that is issued with the final rule.

The NRC staff appreciates the continued engagement from the ACRS on the proposed Part 53 rule and considers the Committee's recommendations to be valuable input to this complex rulemaking effort.

Sincerely,



Taylor, Robert signing on behalf  
of Veil, Andrea  
on 02/10/23

Andrea D. Veil, Director,  
Office of Nuclear Reactor Regulation

cc: Chairman Hanson  
Commissioner Baran  
Commissioner Wright  
Commissioner Caputo  
Commissioner Crowell  
SECY

SUBJECT: RESPONSE TO THE ADVISORY COMMITTEE ON REACTOR SAFEGUARDS,  
 "FINAL LETTER ON DRAFT 10 CFR PART 53 RULEMAKING LANGUAGE",  
 DATED: FEBRUARY 10, 2023

**DISTRIBUTION: LTR-22-0326-1**

Public  
 RRPB R/F  
 RBeall, NMSS  
 GLappert, NMSS  
 LNist, NRR  
 IBerrios, NMSS  
 SLynch, NRR  
 CRegan, NMSS  
 RFelts, NRR  
 MShams, NRR  
 RidsNrrOd Resource  
 RidsAcrcAcnw\_MailCTR  
 RidsNrrMailCenter Resource  
 RidsEdoMailCenter Resource  
 RidsOgcMailCenter

**ADAMS Accession Nos.: ML22341A047**

**NRR-106**

<b>OFFICE</b>	NMSS/REFS/RRPB: PM	QTE	NMSS/REFS/RRPB: RS	NRR/DRO/IOLB: BC
<b>NAME</b>	RBeall	JDougherty	GLappert	LNist
<b>DATE</b>	12/19/2022	12/23/2022	12/20/2022	01/03/2023
<b>OFFICE</b>	NMSS/REFS/RRPB: BC	NRR/DANU/UARP: BC	NMSS/REFS: DD	NRR/DRO: DD
<b>NAME</b>	IBerrios	SLynch	CRegan	RFelts
<b>DATE</b>	01/17/2023	01/18/2023	01/17/2023	01/12/2023
<b>OFFICE</b>	NRR/DANU: DD	OGC (NLO)	NRR: D	
<b>NAME</b>	MShams	MSmith	AVeil (RTaylor for)	
<b>DATE</b>	01/18/2023	02/01/2023	02/10/2023	

**OFFICIAL RECORD COPY**