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Ms. Michelle W. Hayes
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Division of Advanced Reactors and Non-Power Production and Utilization Facilities
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Subject: NEI Input on Analysis of Applicability of NRC Regulations for Non-Light Water Reactors

Project Number: 689

Dear Ms. Hayes:

The purpose of this letter is to provide the U.S. Nuclear Regulatory Commission (NRC) with the Nuclear Energy Institute's (NEI)¹ input on the NRC Staff Draft White Paper Analysis of Applicability of NRC Regulations for Non-Light Water Reactors (Sept. 2020) (ML20241A017) (Draft White Paper). We are aligned with the NRC in the desire for a more efficient path for dispositioning regulations that are not applicable to non-light water reactors (non-LWRs). However, we are concerned that the Draft White Paper does not fully identify regulations that are not applicable to non-LWRs or clearly define a pathway to disposition these regulations without the need for an exemption. While we agree that in some cases exemptions will be required, the approach described in the NRC's Draft White Paper will likely require the extensive use of case-by-case exemptions.

Generically identifying regulations that do not apply to non-LWRs, and establishing an alternative to exemptions when they are not needed, will facilitate more streamlined non-LWR applications and more efficient NRC reviews by focusing the application's contents and the NRC staff's review thereof on the information that is directly relevant to the NRC's safety findings. If certain requirements are identified as either (1) not directly applicable to non-LWRs or (2) as specific to the characteristics of, or risk of events in, LWRs, then the underlying purpose of those regulations does not apply to non-LWRs. Consequently, compliance with those requirements is not necessary to support the NRC's required statutory findings (concerning adequate protection of the public health and safety and the common defense and security) under the Atomic Energy Act of 1954, as amended (AEA) and Title II of the Energy Reorganization Act of 1974 for non-LWRs. This is also consistent with the philosophy underlying the Commission's direction to the staff in SRM-SECY-19-0036: "In any licensing review or other regulatory decision, the staff should apply risk-informed principles when strict, prescriptive application of deterministic criteria such as the single failure

¹ The Nuclear Energy Institute (NEI) is responsible for establishing unified policy on behalf of its members relating to matters affecting the nuclear energy industry, including the regulatory aspects of generic operational and technical issues. NEI's members include entities licensed to operate commercial nuclear power plants in the United States, nuclear plant designers, major architect and engineering firms, fuel cycle facilities, nuclear materials licensees, and other organizations involved in the nuclear energy industry.

criterion is unnecessary to provide for reasonable assurance of adequate protection of public health and safety.”

Accordingly, in finalizing its Analysis of Applicability of NRC Regulations for Non-Light Water Reactors, we encourage the NRC to keep two overarching objectives in mind:

1. Clearly identify all regulations that are broadly not applicable to non-LWRs (using “entry conditions”, as needed). In determining whether a regulation is applicable or not applicable to non-LWRs, the NRC should base its determination on the technical aspects of the design and the underlying safety purpose of the regulation, neither of which changes based on the licensing process used (i.e., 10 CFR Part 50 versus 10 CFR Part 52).
2. Establish a process to address the regulations that are broadly not applicable to non-LWRs in a manner that minimizes the number of exemptions. This approach would provide consistency and predictability to the application process, as compared to expecting applicants to individually assess the entire body of regulations, and to seek numerous specific exemptions.

We discuss each of these two objectives in greater detail below.

A. Objective 1: Clearly identify all regulations that are broadly not applicable to non-LWRs.

The regulations in 10 CFR Part 50 and 10 CFR Part 52 were established around large light-water reactor (LWR) technology with prescriptive requirements that are specific to features of these designs. Non-LWRs differ substantially from LWRs and are expected to protect the public health and safety without the need for many of the features of LWRs. Thus, there are many regulations for which the underlying purpose does not apply to reactors that are not LWRs, because the purpose relates to design features that are not present in these designs. As such, non-LWRs need not comply with those regulations because they are not technically relevant and therefore are not relevant to the NRC’s required safety findings.

The NRC should clearly identify all regulations that are broadly not applicable to non-LWRs (using “entry conditions”, as needed), and we appreciate the NRC’s effort to document this in their draft White Paper. The attached NEI paper was written to provide the industry’s evaluation of the applicability of 10 CFR Part 52 content-of-application regulatory requirements to non-LWRs. It is not intended to be an exhaustive review of all regulatory requirements; it specifically focuses on the content-of-application requirements in 10 CFR 52.79 and associated Part 50 references. The majority of the regulations identified in the attached paper are listed in NRC’s “Table 2 – Part 52 Regulations Referencing Part 50 Regulations Limited to LWRs,” in which the NRC staff has identified regulations that are applicable only to LWRs.

While we agree with much of the NRC staff’s analysis of applicability, there are some regulations where we disagree with the NRC’s conclusion that a regulation is applicable to non-LWRs. For example, 10 CFR 50.55a(a) should be identified as not applicable since the NRC staff acknowledges that it “does not itself impose requirements.” However, it remains identified as applicable to non-LWRs, implying that individual applicants should assess the list of standards, the vast majority of which have already been identified as not applicable.

We recognize that the applicability of some regulations to non-LWRs may depend on the specifics of a given reactor design. In such cases, the NRC’s proposed use of “entry conditions” for ascertaining technical relevancy – as reflected in “Table 4 - Applicability of 10 CFR 50.34(f) “TMI Requirements” to non-LWRs

under Part 52” of the Draft White Paper – may be an acceptable performance-based solution. Therefore, we recommend that NRC consider expanding the use of such entry conditions in Table 4 for additional regulations that the NRC concludes cannot be deemed generically not applicable to non-LWRs. Additionally, several topical areas in Table 2 should be candidates for the use of performance-based entry conditions if they cannot be determined to be generically not applicable to non-LWRs, e.g., Analysis of Structures, Systems, and Components (SSCs) and Emergency Core Cooling System (ECCS) Evaluation, Station Blackout (SBO), Containment Leak Rate, and Reactor Vessel Surveillance Program.

B. Objective 2: Establish a process to address the regulations that are broadly not applicable to non-LWRs and minimize the number of exemptions required to the maximum extent practicable.

The NRC’s Draft White Paper identifies several regulations that are not applicable to non-LWRs; however, the Draft White Paper is mostly silent on the process to disposition regulations identified as not applicable. In the cases where the paper identifies a process, the NRC indicates that exemptions will be required. We are concerned that the NRC’s approach is primarily focused on using the exemption process, which we believe is inefficient and, in most cases, not required. The NRC should establish a process to address the regulations that are broadly not applicable to non-LWRs in a manner that minimizes the number of exemptions. This approach would provide consistency and predictability in the application process, and minimize the need for non-LWR applicants to individually assess the entire body of regulations and/or seek numerous specific exemptions.

NEI recognizes that the NRC has a process for evaluating and granting exemptions from applicable requirements. An “exemption” is “a Commission-granted dispensation from compliance with one or more of the Commission’s rules and regulations *which would otherwise apply* to an entity, a license, permit or other approval such as a standard design certification rule.”² However, we are concerned that the use of case-by-case exemptions from regulations that are not applicable to non-LWRs would be inefficient given the large volume of exemptions that would be needed under the staff’s current proposed approach.³ As Chairman Svinicki noted in a response to a question from Senator John Boozman in 2017:

[T]he NRC acknowledges the potential inefficiencies for non-LWR applications submitted under 10 CFR Part 50 or Part 52 that are reviewed against existing LWR requirements, using LWR-based processes, and licensed through the use of regulatory exemptions and imposition of new requirements where design-specific review, analysis, and additional engineering judgement may be required. The NRC’s non-LWRs [*sic*] readiness activities are intended to address these potential inefficiencies and to provide increased regulatory certainty and predictability to non-LWR stakeholders.⁴

² Licenses, Certifications, and Approvals for Nuclear Power Plants; Final Rule, 72 Fed. Reg. 49,352, 49372 (Aug. 28, 2007) (emphasis added).

³ See Nuclear Innovation Alliance, *Report on Strategies for Advanced Reactor Licensing*, at 5, 52, 56 (Apr. 2016) (ADAMS Accession No. ML16104A147) (“Advanced reactor designers from both traditional industrial organizations and small start-ups are concerned with the cost and schedule uncertainty associated with the exemption process (as well as potential negative perception that applicants are trying to avoid stringent safety regulation). As a result, they are hesitant to submit applications without first being assured that exemption requests will be meaningfully processed.”).

⁴ Senate Committee on Environment and Public Works Hearing entitled “Oversight of the Nuclear Regulatory Commission” December 13, 2017 Questions for the Record, The Honorable John Boozman (Questions for Chairman Svinicki and Commissioners Baran and Burns) (Response to Question 17), available at <https://www.govinfo.gov/content/pkg/CHRG-115shrg28623/pdf/CHRG-115shrg28623.pdf>.

To avoid such inefficiencies, the NRC staff must establish clear, predictable, and efficient processes by which non-LWR applicants can demonstrate – without the repeated use of case-by-case exemptions – that certain regulations do not apply to their designs. While the NRC staff has determined that certain regulations are anticipated not to apply to non-LWRs (see NRC Tables 3 and 5 of the Draft White Paper), it is not clear how non-LWR applicants and NRC are expected to confirm and document that finding. Hence, we ask that the NRC work with stakeholders to identify a clearer and less complex process by which non-LWR applicants may document that a given regulation is not applicable to their reactor design, such that no exemption is required. We believe the rigid exemption process is not required to be exercised by non-LWR applicants and the NRC when it is clear that the purpose of the regulation does not apply to the design, and therefore does not trigger the need for an exemption pursuant to any of the “special circumstance” criteria listed in 10 CFR 50.12(a)(2). Notably, there is regulatory precedent for this approach; i.e., during case-specific reviews, the NRC has determined that exemptions were not necessary because the regulations in question were not applicable to the specific reactor design. In view of these considerations, and the additional information provided in the attached paper, NEI respectfully requests that the NRC Staff reexamine the premise that regulations that are not applicable to non-LWRs necessarily require exemptions from the regulations at issue for non-LWR designs.

Furthermore, the applicability of the underlying purpose of a technical requirement is not affected by the licensing process chosen, i.e., Part 50 or Part 52. We are concerned that the NRC intends to process non-applicable regulations for the same non-LWR applicant differently based on Part 50 or Part 52. As an example, we disagree with the NRC staff position that Part 52 regulations in “Table 2 – Part 52 Regulations Referencing Part 50 Regulations Limited to LWRs” necessarily require exemptions from the regulations for non-LWR designs. The Part 52 regulations at issue explicitly reference Part 50 regulations that the staff concedes “do not apply to non-LWRs.” We agree that these requirements are applicable only to LWRs; however, we disagree with the NRC staff conclusion that non-LWR applicants will need exemptions from these regulations. In the attached paper, we provide details supporting our position that because the underlying purpose of these regulations simply does not apply to non-LWRs as a class, they do not require exemptions. Engaging in case-by-case exemption analyses of whether the application of those regulations to non-LWRs “would not serve the underlying purpose of the rule or is not necessary to achieve the underlying purpose of the rule” (i.e., the likely relevant “special circumstance” under 10 CFR 50.12(a)(2))⁵ does not facilitate an optimally “efficient and effective review.”⁶

Given the NRC’s broad discretion under the AEA⁷ and “considerable flexibility” under the Administrative Procedure Act “to choose between rulemaking and adjudicatory procedures when making law,”⁸ we believe the staff can devise a more efficient approach that avoids what the Chairman described as licensing

⁵ 10 CFR 50.12(a)(2)(ii). 10 CFR 52.7 cross-references the specific exemption criteria in 10 CFR 50.12.

⁶ Draft White Paper at 3.

⁷ See, e.g., *Siegel v. AEC*, 400 F.2d 778, 783 (D.C. Cir. 1968) (explaining that “flexibility was a peculiar desideratum” of the AEA’s proponents, and that “Congress agreed by enacting a regulatory scheme which is virtually unique in the degree to which broad responsibility is reposed in the administering agency, free of close prescription in its charter as to how it shall proceed in achieving the statutory objectives”); *Ohio ex rel. Celebrezze v. NRC*, 868 F.2d 810, 813 (6th Cir. 1989).

⁸ *All Power Reactor Licensees & Research Reactor Licensees Who Transport Spent Nuclear Fuel*, CLI-05-6, 61 NRC 37, 40-41 (2005) (citing *NLRB v. Bell Aerospace Co.*, 416 U.S. 267 (1974); *SEC v. Chenery Corp.*, 332 U.S. 194 (1947) (recognizing the “need for regulatory flexibility and administrative efficiency” and explaining that the Commission can “tailor” its requirements “to the peculiar needs of individual licensees if necessary, and do so in a single adjudicatory proceeding”).

Ms. Michelle W. Hayes

October 30, 2020

Page 5

"through the use of exemptions." NEI requests that the NRC reconsider whether it has examined all procedural alternatives to a case-by-case exemption approach for non-LWR applications and develop a timely alternative to the exemption process. These options include documenting a generic determination that can be referenced by applicants, or the use of hearing orders.^{9,10} While rulemaking such as Part 53 will be valuable in the long term, we do not think it is a timely solution for near-term applicants. Accordingly, we request that NRC work with stakeholders to determine the best approach to disposition regulations that are not applicable to non-LWRs without the need for an exemption.

We appreciate the NRC staff's efforts on this issue and its consideration of the industry's related recommendations. If you have questions concerning the industry's input, please contact me.

Sincerely,



Katherine R. Austgen

Attachment

c: Mr. Boyce W. Travis, NRR/DANU/UART, NRC
Ms. Amy E. Cabbage, NRR/DANU/UARP, NRC
Mr. John P. Segala, NRR/DANU/UARP, NRC
Mr. Mohamed K. Shams, NRR/DANU, NRC

⁹ See SECY-20-0032, Rulemaking Plan on "Risk Informed, Technology-Inclusive Regulatory Framework for Advanced Reactors (RIN-3150-AK31; NRC-2019-0062)", at 5 (Apr. 13, 2020) ("To accomplish this flexibility in the past, the Commission has used tools such as rules of particular applicability and hearing orders.").

¹⁰ The Commission previously has used hearing orders for individual licensing proceedings to clarify both applicable and non-applicable regulations and other requirements. See, e.g., Notice of Receipt of Application for License Notice of Availability of Applicant's Environmental Report; Notice of Consideration of Issuance of License; and Notice of Hearing and Commission Order; Louisiana Energy Services, LP.; Claiborne Enrichment Center, 56 Fed. Reg. 23,310 (May 21, 1991); Louisiana Energy Services, L.P. (National Enrichment Facility); Notice of Receipt of Application for License; Notice of Availability of Applicant's Environmental Report; Notice of Consideration of Issuance of License; and Notice of Hearing and Commission Order, 69 Fed. 5873 (Feb. 6, 2004); GE-Hitachi Global Laser Enrichment LLC; (GLE Commercial Facility); Notice of Receipt of Application for License; Notice of Consideration of Issuance of License; Notice of Hearing and Commission Order, 75 Fed. Reg. 1819 (Jan. 13, 2010).