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GE Nuclear Energy

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Secretary
 Attention: Rulemakings and Adjudications Staff
 Mail Stop O-16C1
 U.S. Nuclear Regulatory Commission
 Washington, D.C. 20555-0001

OFFICE OF SECRETARY
 RULEMAKINGS AND
 ADJUDICATIONS STAFF

RE: Draft Revisions to 10 CFR Part 52; Need for a Design Certification Amendment Process to Enhance Prospects for Construction and Operation of a Certified Design

Dear Secretary:

NRC currently is engaged in rulemaking to revise 10 CFR Part 52. On March 22, 2002, the Nuclear Energy Institute (NEI) submitted a letter to the NRC proposing that the rulemaking establish a process to enable a design certification applicant to apply for an amendment of the design certification. For the reason discussed below, GE Nuclear Energy supports NEI's proposal for a design certification amendment process.

As stated in NRC's notice of the draft revision to Part 52 (66 Fed. Reg. 49324), the purpose of the revision is "to update Part 52 based on experience gained in the use of the rule" and "to enhance its provisions." Experience with the Advanced Boiling Water Reactor (ABWR), which is certified in Appendix A to Part 52, indicates a need for a process by which the design certification applicant can request the NRC to amend a design certification. This is driven by the economic competitiveness required by the utilities and increased design maturity of the ABWR. Therefore, GE Nuclear Energy supports NEI's request for the NRC to include such a provision in the proposed revision to Part 52.

The NRC completed its review of the ABWR design and issued its final safety evaluation report for the ABWR in 1994. Since that time, first-of-a-kind-engineering (FOAKE) has been completed for the ABWR, two ABWRs have been constructed and are in operation in Japan, and another two ABWRs are being constructed in Taiwan. Additionally, there have been improvements in technology, and market conditions have changed, with increased emphasis on economic competitiveness and need for additional reduction in economic risk for a new plant project. Based upon these developments, GE Nuclear Energy has identified a number of beneficial changes in the ABWR. Furthermore, potential customers of the ABWR in the United States have expressed an interest in purchasing an ABWR, especially with the types of changes identified by GE Nuclear Energy.

Currently, Part 52 allows plant-specific changes in a certified design to be made by the COL applicant in individual licensing proceedings (through the "50.59-like" process and by requesting NRC approval of the more significant changes). However, this process introduces unwanted uncertainty and economic risks for the COL applicant, and our potential customers have informed us that they desire more certainty before contracting for a new nuclear plant. In particular, Dominion and Entergy both of which have announced their intent to submit Early Site Permit requests, have informed us that they do not desire to be burdened with the costs and risks of making plant-specific changes and support the proposed design certification amendment process. Additionally, Part 52 allows the design certification applicant to apply for a new design certification that incorporates the changes. However, given the cost of a new design certification, this method is not commercially viable for making the kinds of changes envisioned under this proposal. Therefore, GE Nuclear Energy supports NEI's request for the NRC to revise Part 52 to allow the design certification applicant to request the NRC to amend a design certification through rulemaking. Such a process will reduce the unnecessary regulatory burdens associated with the existing changes processes in Part 52, without impacting safety. Inclusion of a design certification amendment process in Part 52 will facilitate changes to the design certification of the ABWR and enhance the prospects for construction and operation of an ABWR in the United States.

GE Nuclear Energy also recognizes that the notice of the draft revision to Part 52 requested comments within 45 days of the notice (which has now passed), and that the NRC staff intends to provide the Commission with language for a proposed rule in the near future. As a result, we appreciate that the NRC may not have time to fully consider the proposal prior to issuance of the proposed rule. In such an event, GE Nuclear Energy requests that the statement of consideration for the proposed rule at least mention the proposal and seek public comments on it. This would enable the Commission to adopt the proposed design certification amendment process as part of the final rule.

Thank you for your consideration.

Sincerely,



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SAH-02-012

cc: Chairman Richard Meserve
Commissioner Greta Dicus

Commissioner Nils Diaz
Commissioner McGaffigan
Commissioner Jeffrey Merrifield
William Travers, EDO
William Kane, EDO
Samuel Collins, NRR
William Borchardt, NRR
James Lyons, NRR
Jerry Wilson, NRR
Ronald Simard, NEI

REASONS FOR AN AMENDMENT PROCESS FOR A DESIGN CERTIFICATION RULE

1.0 Introduction

10 CFR § 52.63(b) and Section VIII of the design certification rules allow a license applicant to seek NRC approval of plant-specific changes in a design certification. Additionally, 10 CFR § 52.63(a) allows any person to request the Commission, on its own initiative or the request of any person, to engage in rulemaking to modify a design certification. However, such modifications are limited to changes “necessary either to bring the certification or the referencing plants into compliance with the Commission's regulations applicable and in effect at the time the certification was issued, or to assure adequate protection of the public health and safety or the common defense and security.” Currently, Part 52 does not contain any provision that would allow the applicant for design certification to request the Commission to amend the design certification to provide for beneficial changes in the design certification. For the reasons discussed below, the Commission should revise Part 52 to allow the design certification applicant to request the Commission to engage in rulemaking to amend a design certification.

2.0 Reasons in Support of the Proposed Revision to Part 52

2.1 Background

When Part 52 was first proposed, Section 52.63(b) included a provision that was similar to that proposed above. 53 Fed. Reg. 32060, 32075 (August 23, 1988). However, the Commission deleted that provision from the final rule, stating:

The final rule places a designer on the same footing as the Commission or any other interested member of the public. No matter who proposes it, a change will not be made to a design certification while it is in effect unless the change is necessary to bring the certification into compliance with Commission regulations applicable and in effect when the certification was issued, or to assure adequate protection of public health and safety. See § 52.63(a)(1). Thus, the final rule cannot be said to make it easier for a designer to amend a certification than for the Commission to backfit the design. But more important, the final rule thus provides greater assurance that standardization and the concomitant safety benefits will be preserved. (54 Fed. Reg. 15372, 15378 (April 18, 1989).

This decision was made prior to any experience with detailed design, construction and operation of a plant with a design that had been certified, and therefore was made without the benefit of lessons learned that are currently available.

We have now have experience with detailed design, construction and operation of a design that has been certified - - specifically, for the Advanced Boiling Water Reactor (ABWR) which is certified in Appendix A to Part 52. Specifically, first-of-a-kind-engineering (FOAKE) for the ABWR in the United States was completed and was subsequently modified during the detailed design phase for the Lungmen project in Taiwan, and construction of the two ABWRs for the Lungmen project has proceeded. Additionally, ABWRs for Kashiwazaki Kariwa Units 6 and 7 were constructed and are now in operation in Japan. Based upon this experience, we now know that a number of beneficial design changes can be made in Tier 1, Tier 2, and the generic technical specifications for the ABWR as certified by the NRC. For example:

- As with any project that undergoes detailed design development, construction, and operation for the first time, a number of beneficial design changes have been identified in the ABWR. These changes run the gamut from improvements in efficiency and reliability, to cost savings, to vendor specific changes and minor corrections.
- The certified design of the ABWR was developed in the mid 1980s to early 1990s. Improvements in technology have occurred since that time, including improvements of benefit to safety.
- The electric utility industry has been deregulated since the early 1990s. As a result, there is now an increased emphasis by potential customers of nuclear plants for increased power generation at reduced costs. This has been evident, for example, in the numerous power uprates for existing plants.

As discussed below, there should be a mechanism for a designer to request the NRC to approve these types of changes, without the need for a new design certification application and without the need to require each license applicant to request NRC approval of the changes on a plant-specific basis. Such a process would help avoid the need for plant-specific changes (which might vary from plant-to-plant) and therefore would be consistent with the Commission's objective of promoting standardization.

2.2 The Plant-Specific Change Process Is Not a Viable Alternative to a Design Certification Amendment Process

GE Nuclear Energy has been in contact with various nuclear utilities in the United States, and some of the utilities have expressed an interest in purchasing an ABWR. They have also stated that their interest would be significantly increased if the ABWR were to include the types of design changes discussed above. A more competitive design along with construction experience that reduces future project risks is highly desired by potential customers.

Section 52.63(b) and Section VIII of the design certification rules currently allow a license applicant to make changes in Tier 2 that do not involve an unreviewed safety question (i.e., a "50.59-like process) and allow the applicant to request NRC approval of

other plant-specific changes in the design control document. However, this process places the burden (and risk) on the license applicant, rather than the design certification applicant. Furthermore, under this process, a license applicant would not have certainty regarding the acceptability of the design changes until the COL is issued, which is after the applicant has already made a substantial investment in the project. Potential customers want such matters resolved before a project decision is made.

Furthermore, this process only results in approval of plant-specific changes, not generic changes to the design certification. Thus, if changes were made on a plant-specific basis, standardization could be lost.

Our potential customers have informed us that they do not desire to assume the additional risk and burden of requesting NRC approval of plant-specific changes as part of the COL proceeding. Yet this is the only alternative currently available under Part 52. There is a need for a process for the design certification applicant to request NRC approval of the modified design on a generic basis.

2.3 A New Design Certification Application Is Not a Viable Alternative

Currently, Part 52 only provides one method for a design certification applicant to seek NRC approval for a modified design - - by submitting a new application for design certification.¹ However, for a number of reasons, submitting a new application for design certification is not a viable method for seeking NRC approval of the types of changes discussed above in a predictable or short time frame.

As discussed in SECY-01-0188, the NRC estimates that a design certification review will take 42-60 months. Furthermore, even for a design that is similar to an existing certified design (e.g., for the AP1000), SECY-01-0188 estimates that the NRC's review costs will total about \$8 million, and Westinghouse has estimated that the design certification proceeding may last almost three years. As a result, given the time and cost of NRC's review of a new design certification application, a new application simply is not a viable alternative for seeking NRC approval to make the kinds of changes envisioned under this proposal.

Furthermore, submission of an application for a new design certification is undesirable for other reasons. First, for a new application, the NRC would be obligated to review and approve the entire design, including those aspects of the design that are not affected by

¹ 10 CFR § 52.57 and § 52.59 also allow any person, including the design certification applicant, to seek a renewal of the design certification and to propose amendments to the design as part of the renewal application. However, an application for renewal may not be filed sooner than 36 months prior to expiration of the design certification, and therefore a renewal application is not a viable method for amending the design certification to account for lessons learned identified after detailed design, construction, and operation of the first unit.

the changes proposed by the design certification applicant. Such a review is not a good use of scarce NRC resources.

Second, a new application would enable the NRC to raise questions on and require changes to design in areas that were previously approved by the NRC and for which the applicant is not seeking any design changes. Thus, NRC's review could prove counterproductive to the objectives of the design certification applicant.

2.4 A Design Certification Amendment Process Has Numerous Advantages for Both the Industry and the NRC

The only viable method for obtaining NRC approval of the types of design changes discussed above is through a design certification amendment process. Such a process would have a number of advantages:

- Safety – The application for an amendment would need to comply with the regulations in effect at the time of the amendment (rather than the time of initial certification). This will help ensure that the proposed amendment meets NRC's latest requirements and is safe.
- Focus – Both the amendment application and NRC's review would be focussed on the changes sought by the applicant and would not be required to consider other matters that are unaffected by the applicant's proposed changes. Thus, an amendment process will be more focussed (and therefore less costly and more productive) than the process for a new design certification application.
- Efficiency – An amendment to a design certification would apply to all pending and future license applications that reference the design certification, thereby relieving each license applicant of the burden of justifying the change and relieving the NRC of the need to perform multiple reviews of similar plant-specific changes. Thus, a design certification amendment process is more efficient than a series of plant-specific reviews and promotes standardization.
- Certainty – An amendment to a design certification would also resolve, for all subsequent license applications, any questions regarding the acceptability of the proposed design changes. Thus, the amendment process would provide greater certainty and stability for license applicants, who otherwise would be faced with the prospects of hearings and the concomitant risks and uncertainties.
- Timeliness – The duration of NRC's review of a request of a design certification amendment should be substantially less than the duration of its review of a new design certification. Furthermore, a design certification amendment would enable license applicants and the NRC to avoid the need to consider proposed design changes for each license application. Thus, a design certification amendment process

will provide for more timely approval of generic changes and the licensing of plants that reference the design certification.

- Conservation of Resources – A design certification amendment process will enable both the industry and the NRC to conserve their scarce resources. Obviously, a design certification amendment process will be less resource-intensive than multiple reviews of the same set of changes for each license application. Furthermore, a design certification amendment will have a more narrow scope than a new certification application, thereby reducing the resources needed by both the applicant and NRC.
- Reduction of Unnecessary Regulatory Burdens – Currently, Part 52 provides two other methods (i.e., a new design certification application and plant-specific changes by license applicants) for obtaining the same results as the proposed design certification amendment process. However, each of those methods is substantially more burdensome than a design certification amendment process, with no concomitant benefits. Therefore, a design certification amendment process would enable the NRC to reduce unnecessary regulatory burdens.
- Preservation of Public Input – Under our proposed rule language, a design certification amendment would require notice and comment rulemaking. Therefore, the public would have full rights to provide input on the proposed changes to the design certification.

In summary, it simply makes no sense for a design certification applicant to apply for a new design certification when the applicant only desires NRC approval of a discrete set of generic changes, or to require multiple license applicants to seek NRC review and approval of the same set of design changes. From every perspective, a design certification amendment process is preferable to either a new design certification or multiple plant-specific changes.

3.0 Analysis of NRC's Reasons in 1989 Against a Design Certification Amendment Process

The statement of consideration for the Part 52 identifies two reasons why NRC did not adopt a design certification amendment process. Each of these reasons is evaluated below.

First, NRC stated that it should not be easier for a designer to amend a certification than for the Commission to backfit the design. 54 Fed. Reg. at 15377. However, this reasoning contains a non sequitur. As the Commission explained, one of the primary purposes of Section 52.63(a) is to “protect the vendor against arbitrary amendment or rescission of the design certification rule.” 54 Fed. Reg. at 15375. While this explanation

is applicable to backfits imposed by the Commission under Section 52.63(a), it obviously has no validity to changes proposed by the vendor itself.

Second, NRC stated that frequent changes to a certified design would frustrate the enhanced safety which standardization makes possible, and that the absence of a design certification amendment process "provides greater assurance that standardization and the concomitant safety benefits will be preserved." 54 Fed. Reg. at 15376 and 15377. However, as explained below, allowing the design certification applicant to request a design certification amendment should not result in any significant loss of standardization:

- Beneficial design changes will be identified during the detail design, construction, and operation of the first plant that references a design certification. It is reasonable to assume that the design certification applicant would then promptly request an amendment of the design certification in order to make the certified design more attractive to customers. All subsequent applicants would then be required to use the amended design. This will assure that the benefits of standardization are largely achieved.
- Plants referencing the amended design certification will be safe (and probably safer than the plants that reference the original design certification, because the amended design will likely include improvements in safety and reliability). Therefore, while there may be a slight loss of standardization, this loss will be offset by the enhanced safety of the amended design and/or improvements in economics.²

4.0 Conclusions

Based upon lessons learned from FOAKE, construction, and operation of the ABWR, it is evident that beneficial changes can be made in a certified design. These changes may be critical to ensuring the commercial viability of the design in today's increasingly competitive energy marketplace. Part 52 already contains a process allowing a design certification applicant to apply for a new design certification and for license applicants to seek NRC approval of plant specific changes. However, given their costs and risks, neither of these processes is viable. As a result, the Commission should amend Part 52 to enable a design certification applicant to request the Commission to engage in rulemaking to amend a design certification.

² Furthermore, Section 52.63(b) and Section VIII of the design certification rules already enable a license applicant to make plant-specific changes from a design certification. Thus, a design certification amendment process would not result in any additional loss of standardization than is already permitted by Part 52 on a plant-specific basis. Rather, a design certification amendment process would enhance standardization, as the amendment would become part of the design certification applicable to future applicants.