

PR 1,2,10,19,20,21,25,26,50,51,52,54,55, et. al.
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DOCKETED
USNRC



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June 26, 2006 (2:28pm)
OFFICE OF SECRETARY
RULEMAKINGS AND
ADJUDICATIONS STAFF

20

Date:
23 June 2006

Your Ref.

Our Ref.:
USDC20060623-1

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TEL:US 423-344-6774

Annette L. Vietti-Cook
Secretary
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

ATTENTION: Rulemakings and Adjudications Staff

SUBJECT: *Federal Register* Notice 71 Fed. Reg. 12,782 (Mar. 13, 2006), Notice of Proposed Rule (NOPR) for Licenses, Certifications, and Approvals for Nuclear Power Plants (RIN 3150-AG24)

Dear Ms. Vietti-Cook:

Pebble Bed Modular Reactor (Pty) Ltd. (PBMR) appreciates the opportunity to submit the following comments on the NOPR on Part 52. Although beyond the due date, we hope that they can be included for consideration.

PBMR is a reactor vendor who is planning to submit an application for a design certification of a standard reactor design under Part 52. Therefore, PBMR has a direct stake in the outcome of this rulemaking.

We fully endorse the comments of the Nuclear Energy Institute (NEI) on the proposed rule. Additionally, because a number of the proposed changes directly affect design certification applicants, we believe that further elaboration of NEI's comments is warranted.

The proposed rule includes a number of provisions that are beneficial to applicants for early site permits (ESPs), combined licenses (COLs), and design certifications. In

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particular, we commend the NRC for the proposed changes in the design certification rules in the appendices to Part 52, and urge the NRC to proceed with those changes.

However, overall, the proposed rule includes many provisions that would be detrimental to ESPs and COLs. Furthermore, with respect to design certification applicants, none of the proposed changes is beneficial and a number are detrimental.

In particular, we are concerned that the proposed rule would add a number of new requirements on design certification applicants. As discussed in more detail in Attachment 1, these include a requirement to describe and evaluate provisions to prevent and mitigate severe accidents, a requirement for the design certification applicant to demonstrate its technical qualifications, and a requirement to evaluate generic letters and bulletins. The proposed rule contains almost no discussion of the reasons for these new requirements, nor does the proposed rule provide any justification for the new requirements. We believe that the new requirements are unnecessary and would be problematic. Since the existing rules have proven effective with respect to the design certification of four reactor designs, we see no reason for the NRC to modify those provisions by adding burdensome new requirements.

Additionally, we are concerned that a number of the proposed changes would have the effect of transforming a design certification applicant into a licensee. As discussed in more detail in Attachment 2, the proposed rule would impose a number of licensee-related provisions on design certification applicants, including various reporting requirements and employee protection requirements. These changes are incompatible with the very nature of the design certification process. Design certification occurs through rulemaking, not licensing. After issuance of the design certification rule, the design certification applicant has no proprietary interest in the rule. As the Commission stated when it first promulgated Part 52, "a rule certifying a design does not, strictly speaking, belong to the designer." (54 Fed. Reg. at 15375) In fact, as provided in 10 CFR § 52.73, an entity other than the design certification applicant may supply the standard design to a COL applicant. Therefore, it would be inappropriate to treat a design certification applicant similarly to a licensee, when the design certification applicant is not afforded the rights or protections of a licensee.

At this stage in the life of the nuclear power industry in the United States, we are extremely concerned that the NRC is proposing to add burdensome new requirements on the industry in general and design certification applicants in particular. For the first time in more than 25 years, the industry is considering ordering a new nuclear power plant. Now is not the time for the NRC to be adding burdensome requirements on new plant applicants. We strongly urge the NRC to delete the new and unnecessary requirements in order to preserve a regulatory environment that is conducive to new nuclear plants.

Very truly yours,

A handwritten signature in black ink, appearing to read 'E. Wallace', written in a cursive style.

Edward G. Wallace
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ATTACHMENT 1

THE PROPOSED RULE WOULD IMPOSE BURDENSOME NEW REQUIREMENTS ON DESIGN CERTIFICATION APPLICANTS

The proposed rule contains numerous new substantive requirements for design certification applicants. Specifically:

1. Proposed Section 52.47(a)(20) would require applications for design certification, COLs, and design approvals to include a description and analysis of design features for the prevention and mitigation of severe accidents (core-melt accidents), including challenges to containment integrity caused by core-concrete interaction, steam explosion, high-pressure core melt ejection, hydrogen detonation, and containment bypass.
2. Proposed 10 CFR § 52.47(a)(19) would impose new requirements for applicants for a design certification to address generic letters and bulletins issued up to six months before the docket date of the application, or comparable international operating experience.
3. Proposed 10 CFR 52.47(a)(24) would specify that applications for a design certification must describe the design features needed to satisfy Part 73 regarding security.
4. Proposed 10 CFR 52.54(b) would require the design certification rule to specify "design characteristics."
5. Sections 52.47(a)(23) and 52.54(a)(4) of the proposed rule would impose requirements for a design certification applicant to demonstrate technical qualifications.
6. Section 52.47(a)(21) of the proposed rule would impose a new requirement on a design certification applicant to describe its quality assurance program under Appendix B to Part 50 for design activities.
7. Proposed Sections 52.47(b)(5), 51.30, 51.31, 51.54, 51.55, and 51.56 would require a design certification applicant to perform an evaluation of severe accident mitigation design alternatives (SAMDA).
8. Proposed Sections 52.47(a)(26) states that a design certification application shall include an evaluation of the standard plant design against the Standard Review Plan (SRP) in effect 6 months prior to the docket date of the application.

For the reasons discussed below, we believe that these new requirements are inappropriate and unnecessary, and should be deleted from the final rule.

The Proposed Rule Contains No Justification for the New Requirements

The Statement of Considerations for the proposed rule contains little or no discussion of the purpose, need, or benefits of these new requirements. We find it particularly disturbing that NRC would propose substantial new requirements on design certification applicants with no apparent justification or consideration of the ramifications of the changes.

In this regard, we believe that the proposed rule is contrary to the NRC's Principles of Good Regulation. The NRC's Principle related to "Clarity" states:

Regulations should be coherent, logical, and practical. There should be a clear nexus between regulations and agency goals and objectives whether explicitly or implicitly stated. Agency positions should be readily understood and easily applied.

The proposed rule provides no nexus between the proposed new requirements and the agency's goals and objectives, nor does it provide any basis for understanding of the agency's positions. Thus, the new requirements in the proposed rule fail one of the NRC's Principles of Good Regulation.

Some of the New Requirements Could Have Significant Negative Ramifications

Some of the new requirements raise policy issues or have significant negative implications for the workability and clarity of Part 52. In particular, the new requirement to evaluate measures to prevent and mitigate severe accidents is vague and open-ended, and is inconsistent with a risk-informed approach to regulation.

In particular, the proposed rule does not identify the specific severe accidents scenarios that must be considered, nor does it limit the evaluation to credible severe accidents. At the very least, the proposed rule should be to limited credible severe accidents.

Furthermore, the proposed rule requires a description and analysis of severe accident features, but it provides no acceptance criteria for those features or the analysis. Therefore, the rule does not provide sufficient clarity as to which design certification applicants must accomplish.

Additionally, the proposed rule states that the application must provide a description and analysis of design features to "prevent" severe accidents. However, all of the examples listed in proposed rule pertain to mitigation of severe accidents. We are not aware of any features that need or should be added to reactor designs to *prevent* severe accidents. Therefore, the proposed rule should be modified to delete any reference to prevention of severe accidents.

More fundamentally, the NRC should not engage in severe accident rulemaking without extensive evaluation of the goals it desires to achieve, and whether the costs are worth the incremental improvement in safety. In the case of the proposed rule, it appears that the NRC has not given any consideration to the goals or costs of the regulation or the potential adverse ramifications or unintended consequences of the regulation.

This deficiency is even more glaring given the fact that the existing design certifications have achieved an adequate level of protection against severe accidents under the existing rules. Given the adequacy of the existing rules, it is unclear why the NRC wants to add further requirements.

In summary, this provision in the proposed rule is unnecessary, inappropriate, and unworkable and should be deleted.

Some of the New Requirements Cannot Be Implemented as Literally Written

In some cases, it will be impossible for design certification applicants to implement the new requirements as literally written. For example, the third new requirement listed above (which requires design features to satisfy the security regulations in Part 73) is too broad and cannot be implemented as written. Many of the security design features required by Part 73 are outside the scope of the standard design and cannot be satisfied by a design certification applicant. In fact, most security design features will be site-specific and will be the responsibility of the COL applicant. Therefore, at the very least, the language in the proposed rule should be modified to indicate that applicants for design certification need only address those security design features that are within the scope of the standard design.

The Proposed Rule Would Inappropriately Elevate NRC Guidance to the Status of a Regulation

In some cases, the new requirements would essentially elevate existing NRC guidance to the status of a regulation. This pertains to the first, second, sixth, seventh, and eighth new requirements listed above. Implementation of that guidance has not proved problematic for either the NRC or the industry. Therefore, there is no reason to elevate that guidance to the status of a regulation. To the contrary, we believe that it would be harmful to elevate the guidance to the status of a regulation since it would remove flexibility for resolving unforeseen circumstances and could lead to unintended consequences.

For example:

- The requirement to evaluate preventive and mitigative features for severe accidents appears to be an attempt to codify the concepts in SECY-93-087. In practice, the industry has implemented that guidance to the satisfaction of the NRC. Elevation of that guidance to the status of a regulation would remove

flexibility for resolving unforeseen circumstances and could lead to unintended consequences. In particular, we note that some of the design certification applicants proposed alternatives to the guidance in SECY-93-087, and the NRC found those alternatives to be acceptable. However, if the guidance is elevated to a regulation, such flexibility might be lost. At the very least, it would add an unnecessary complicating factor. In this regard, the Commission previously considered and rejected the elevation of the provisions in SECY-93-087 to the status of "applicable regulations." (62 Fed. Reg. 25809-25810). Furthermore, the Commission previously rejected the entire concept of establishing regulations related to severe accident performance. (Staff Requirements Memorandum dated August 6, 1997, on SECY-97-148).

- The proposed rule would require design certification applications to include an environmental evaluation of SAMDAs. However, the industry has long maintained that severe accidents in nuclear power plants are remote and speculative under the National Environmental Policy Act (NEPA). In fact, the SAMDA evaluations for the existing design certifications show that the probability of a severe accident is so low, that no SAMDAs are even remotely cost-beneficial for the new reactor designs. Thus, for new plants, the SAMDA evaluation is purely a costly academic exercise with no practical value. Based upon this experience, the NRC should initiate rulemaking, finding that severe accidents in new nuclear plants are remote and speculative and that SAMDA evaluations are not required for new plants. However, the proposed rule would eliminate this option.

In summary, the NRC has issued four design certifications under the existing rules and guidance. This experience has shown that the existing design certification regulations in Subpart B to Part 52 are effective. Given this experience, this simply is no reason to add new requirements to Subpart B or to codify existing guidance.

Some of the New Requirements Would Impose Unnecessary New Burdens

The second, fourth, and fifth new requirements would establish unnecessary new burdens. In particular:

- The new requirement for design certification applicants to address generic letters and bulletins is unnecessary and appears to be largely an academic exercise. NRC's regulations in 10 CFR § 52.47 already require an applicant to address Unresolved Safety Issues and Generic Safety Issues. Additionally, The NRC is currently engaged in an extensive effort to revise and update the SRP, and presumably that update will include lessons learned from operating experience to the extent appropriate. Together, these two requirements will ensure that design certification applications address operating experience to the extent appropriate. Additionally, the requirement to address "comparable international experience" is vague, undefined, and unbounded. Finally, the requirement to address all generic

letters and bulletins is unduly burdensome. The NRC has been issuing generic letters and bulletins since the 1970s. Requiring design certification applicants to address issues that are thirty years old and in some cases that have been superseded by intervening developments is not a wise use of NRC or industry resources

- The intent, purpose, and need for new requirement for the design certification rule to specify “design characteristics” is unclear. The standard design is described in the design control document (DCD), which is incorporated by reference in the design certification rule. As a result, there is no reason to require an additional, separate listing of design characteristics. Furthermore, such a requirement would be administrative in nature and would do nothing to enhance safety. Since there is no guidance or description of the “design characteristics” that need to be listed, we can envision the expenditure of substantial resources (without any safety benefit) while the NRC and the design certification applicants attempt to generate a mutually acceptable list of design characteristics. This is not an appropriate or beneficial expenditure of resources.
- The proposed rule would impose requirements for a design certification applicant to demonstrate its technical qualifications. The existing design certification applicants have not been required to demonstrate their technical qualifications, and there is no reason to impose such a requirement on future applicants. A design certification is a rulemaking activity (and not a license), and the design certification applicant will not necessarily be supplying a reactor to a future COL applicant. Instead, under 10 CFR § 52.73, another entity may be the reactor vendor, and the COL applicant will need to demonstrate the technical qualifications of that entity (as well as its other primary contractors).

In summary, the proposed rule establishes unnecessary and burdensome new requirements, without any justification for doing so.

Some of the New Requirements Would Inappropriately Apply to Non-Light Water Reactors

The new requirements are written generically and would apply to all types of new reactors, including reactor types beyond light water reactors (LWRs). However, in some cases, the genesis of the requirements specifically arose and is applicable to LWRs only, and it would be inappropriate to apply the new requirements to non-LWRs. For example:

- The requirement for a design certification applicant to compare its design against the SRP should only be applicable to LWRs, since the SRP was developed and is specifically applicable only to LWRs. Applicants for other types of reactors, such

as high temperature gas cooled reactors, should not be required to prepare a comparison against the SRP.

- The requirement for an evaluation of features to prevent and mitigate core melt accidents appears to reflect the intent of the NRC to codify the severe accident provisions in SECY-93-087. However, SECY-93-087 pertained only to light water reactors. Furthermore, core melt accidents are not credible in some Generation IV reactor designs, such as high temperature gas cooled reactors (HTGRs). In particular, HTGRs are not susceptible to the type of events specifically listed in the proposed rule, such as steam explosions, high-pressure core melt ejection, and hydrogen detonation. Therefore, there is no reason to require such designs to include an evaluation of features to prevent and mitigate core melt.
- Proposed Sections 52.47(a)(5), (6), (8), and (12) state, without limitation or qualification, that design applicants must meet the requirements in certain NRC regulations. However, the regulations in question only pertain to LWRs. Thus, the proposed rule creates the potential for confusion, because the proposed rule might be erroneously construed as requiring all reactor types (not just LWRs) to satisfy the cited regulations. Therefore, we recommend that the proposed sections cited above be revised either to refer to LWRs (or, in some cases, pressurized water reactors) or to add the phrase “as technically relevant”.

In short, several provisions in the proposed rule are inappropriate as applied to non-LWRs. At the very least, the NRC should modify those provisions to limit their applicability to LWRs.

Conclusions

In summary, the existing regulatory system for design certification has worked well in practice. Using the existing system, the NRC has been able to certify four reactor design that are significantly safer than existing operating reactors. Despite this favorable experience, the NRC is now proposing to add numerous new requirements for design certification applicants. The imposition of substantial new requirements is unnecessary and creates substantial regulatory uncertainty and instability. We strongly recommend that the NRC omit these new requirements from the final rule.

ATTACHMENT 2

THE PROPOSED RULE WOULD INAPPROPRIATELY IMPOSE LICENSEE-RELATED REQUIREMENTS ON DESIGN CERTIFICATION APPLICANTS

The proposed rule would impose a number of licensee-related provisions on design certification applicants, including various reporting requirements and employee protection requirements.

Reporting Requirements in Part 21, Section 52.6(b), and Section 50.46

NRC's existing regulations contain a number of reporting requirements applicable to licensees. These include the reporting requirements in Part 21 to report defects in basic components, the requirements in 10 CFR § 50.9(b) to report information have significant implications for safety, and the requirements in 10 CFR § 50.46 to report certain errors and changes in evaluation models for the emergency core cooling system (ECCS). These reporting requirements have never been applied to design certification applicants *per se* (although they do apply directly or indirectly to reactor vendors who are contractors of licensees). The proposed requirements in Part 21, 10 CFR § 52.6(b), and 10 CFR § 50.46 would impose, for the first time, these reporting requirements directly on design certification applicants.

It would be inappropriate and contrary to the Energy Reorganization Act to apply Part 21 to design certification applicants. Part 21 was established to implement Section 206 of the Energy Reorganization Act. Section 206 of the Energy Reorganization Act applies to "licensees" and vendors/suppliers/contractors of licensees, not to design certification applicants. Specifically, Section 206 applies to

Any individual director, or responsible officer of a firm constructing, owning, operating, or supplying the components of any facility or activity which is licensed or otherwise regulated pursuant to the Atomic Energy Act of 1954 as amended, or pursuant to [the Energy Reorganization Act]...

In particular, since design certification occurs through rulemaking, a design certification applicant cannot properly be considered as a "regulated" entity. As the Commission stated when it first promulgated Part 52, "a rule certifying a design does not, strictly speaking, belong to the designer." (54 Fed. Reg. at 15375) Therefore, design certification applicants do not fall within the scope of Section 206 of the Energy Reorganization Act, and it would be inconsistent with the Act to expand the scope of Part 21 to include them.

Proposed changes to 10 CFR § 50.46(a)(3) would impose the reporting requirements of 10 CFR § 50.46 on design certification applicants, both during the application process and following issuance of the design certification rule. The NRC suggests that this

provision is necessary to ensure that the NRC is notified of changes or errors in the design certification or standard design approvals. (71 Fed. Reg. at 12,805). However, there is no reason for the NRC to be made aware of changes or errors unless and until a design certification is referenced in a license application. If the design certification is never referenced in a license application, no regulatory action is warranted to change or modify the standard design.

Also, the proposed provision would create an unnecessary burden on both the NRC and the industry. A license applicant referencing a design certification will be required to identify any change to or error in an accepted evaluation model upon submittal of an application that references a design certification or design approval. Therefore, the necessary notification (and remedial action if warranted) will be taken at that time. Requiring the applicant for design certification or design approval to make a similar notification would be redundant and is unnecessary.

Finally, for design certifications, the proposed change is inconsistent with the concept that design certification is a rulemaking proceeding rather than a licensing proceeding. The design certification applicant may not be the ultimate vendor of the plant referenced in the license application. If the design certification applicant is not the vendor, the actual vendor (or other entity designated by the license applicant) will need to develop and maintain its own calculations and evaluations to satisfy the requirements in Section 50.46. In such a case, any changes or errors by the design certification applicant would not be relevant to the COL, since the design certification applicant's evaluation would not be the evaluation of record used by the COL applicant.

In this regard, the proposed change would represent a fundamental shift in the regulatory philosophy behind the reporting requirement in Section 50.46. Section 50.46 has always been applicable to licensees and license applicants. Imposing similar requirements on vendors would represent a substantial departure from the existing regulatory provisions, with no real benefit or value. Furthermore, it would create the potential for confusion, since the licensee and license applicant will still be required to make such reports. Thus, the proposed rule would impose a requirement for reporting by two different entities regarding the same error or change, creating the potential for inconsistencies and confusion. Furthermore, there is no reason to impose a reporting requirement on applicants for design certification while their applications are pending, because proposed Section 52.6(a) will require the applicants to provide information to the NRC that is complete and accurate in all material respects. This obligation is broader than the obligation in Section 50.46, and will require applicants to update and correct their applications to account for the type of information covered by Section 50.46.

Employee Protection

Proposed Section 52.5(a) would prohibit discrimination by an applicant for design certification and its contractors against an employee for engaging in certain protected activities. Application of employee protection requirements to design certification applicants is inappropriate and unauthorized under Section 211 of the Energy

Reorganization Act. Section 211 applies to “employers.” Section 211 defines “employer” as including an NRC licensee or applicant for license, and contractors or subcontractors of such a licensee or applicant, and certain Department of Energy contractors or subcontractors. An applicant for a design certification is not encompassed within any of the provisions in Section 211.

Conclusions

These proposed changes are incompatible with the very nature of the design certification process. Design certification occurs through rulemaking, not licensing. After issuance of the design certification rule, the design certification applicant has no proprietary interest in the rule. As the Commission stated when it first promulgated Part 52, “a rule certifying a design does not, strictly speaking, belong to the designer.” (54 Fed. Reg. at 15375) In fact, as provided in 10 CFR § 52.73, an entity other than the design certification applicant may supply the standard design to a COL applicant. Therefore, it would be inappropriate to treat a design certification applicant similarly to a licensee, when the applicant is not afforded the rights of a licensee.

In summary, the proposed rule would have the effect of applying licensing provisions to design certification rulemaking. This fundamental shift in the nature of design certification is inappropriate, is unfair to design certification applicants, and should be rejected.

From: "Ed Wallace" <edward.wallace@pbmr.us>
To: <SECY@nrc.gov>
Date: Sun, Jun 25, 2006 3:45 PM
Subject: Comments on Changes to 10CFR52

The attached comments on the proposed changes to 10CFR52 are submitted for late consideration.

Edward G. Wallace

Sr. General Manager-US Programs

PBMR Pty Ltd

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Subject: Comments on Changes to 10CFR52
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