



P B M R

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Our Ref.:
USDC20060501-1

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NRC Project No. 732

Attention: Ms. Christiana Lui

Subject: Submittal of PBMR Preapplication Papers

- Ref: 1. PBMR (Pty) Ltd. Letter, Subject: PBMR Preapplication Phase 2 Interactions, December 8, 2005.
2. NRC Letter, Subject: PBMR Pre-application Phase 2 Interactions, April 24, 2006.

In reference 1, PBMR (Pty) Ltd. proposed to submit a series of papers during Phase 2 of the preapplication interactions. Your response (reference 2) states that the "NRC has reviewed our proposal and agrees to review a limited set of white papers as part of Phase 2 pre-application activities." Three papers: "Licensing Basis Event (LBE) Selection", "Systems, Structures and Components Safety Classification", and "Defense-in-Depth" are identified as the set of papers that the NRC will review. As your response recognized, "This process and results of these reviews should serve as the basis for any future interaction." Additionally, your response indicates that NRC considers these papers to be related to NRC rulemaking efforts to develop a Technology Neutral Licensing Framework.

As agreed in our April 18, 2006 teleconference, PBMR (Pty) Ltd. will submit the three identified papers, as well as a fourth paper entitled "Probabilistic Risk Assessment (PRA) Approach" which is integral to understanding the three papers identified and is pertinent to NRC's stated objectives. This paper is necessary to understand the discussions provided in the three identified papers. Additionally, it was agreed that PBMR (Pty) Ltd. will also submit our proposed

specification for the design certification application (DCA) for PBMR, e.g., our comprehensive guide for the application utilizing the basic format and content guide of Regulatory Guide 1.70 and the Standard Review Plan (NUREG-0800) and identifying where new or alternate sections are needed and identifying sections that are not applicable to PBMR. Having the NRC review this DCA specification helps assure the requirements for a complete, high quality application are understood well in advance of the application submittal.

PBMR does not believe that limiting the pre-application to these papers will be sufficient to accomplish the principal objectives for undertaking pre-application review of the PBMR design - - that is, to identify and clarify key technical, safety and policy issues of particular importance to PBMR design certification so that PBMR can prepare a high quality design certification application and for the NRC to be well informed and prepared for efficient and effective receipt and review of the application. NRC appears to be focused on utilizing the pre-application review of the PBMR as a means, at least in part, for developing its Technology Neutral Licensing Framework.

PBMR believes the submittal of the papers discussed above to be useful to both PBMR and NRC, but not sufficient to satisfy our needs for preparation of the DCA. To afford the NRC an opportunity to better understand our program and preapplication objectives, we propose to submit the initial four papers and the DCA specification to establish the basic risk-informed licensing approach that PBMR intends to follow. We will be providing links in the initial papers to the other papers that PBMR would like to submit, so that it will be plain for NRC to see how these other papers are necessary pre-application topics for a PBMR application; and, in some cases, also necessary for the development of NRC's performance-based and risk-informed process for new reactor licensing or other generic objectives. Following NRC initial review of these papers, we would then propose engaging in further discussions with the NRC to resolve the importance, value and timing of submitting further papers for NRC review.

The following three examples illustrate the need for our proposed approach. First, our discussions of the LBE/PRA topics will highlight the importance of establishing a mechanistic source term as part of a risk-informed, performance based application. The discussion of how the mechanistic source term will be developed is critical to the PBMR design, and the current deterministic approach for light water reactors (LWRs) is not appropriate for the PBMR. This is also one of the open issues in the development of the Technology Neutral Licensing Framework. How we intend to address this is in the combination of our Fuel Design and Source Term Code Validation and Verification papers. Second, PBMR has proposed one paper on Design for Physical Security to review how the basic layout and design of a plant can reduce the dependence on operational processes. This issue was raised by NRC and is currently expected of all new Design Certification applicants during pre-application. Third, there are sections of the DCA application for which there are no precedents in LWR-oriented sections of Regulatory Guide 1.70 or the Standard Review Plan in NUREG-0800.

For example, there are no sections in those guidance documents that provide ceramic graphite qualification and core internal design description guidance. The pre-application paper on Ceramics Codes and Standards intends to propose how this issue is to be addressed in the DCA for the PBMR.

In summary, during the discussion on the initial papers, NRC and PBMR (Pty) Ltd should jointly establish a refined scope and schedule for the supplemental papers that are proposed to complete the pre-application activities and are needed for PBMR (Pty) Ltd to prepare a high quality DCA.

In light of the above, the initial papers will be delayed in order for PBMR to realign and supplement the content to support this modified approach to our pre-application activities. If you have any questions about this approach, please contact me.

Yours sincerely,



Edward G. Wallace
Senior General Manager- US Programs
PBMR (Pty) Ltd

cc:

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