

August 1, 2007

ORGANIZATION: PEBBLE BED MODULAR REACTOR (PTY) LTD.
PROJECT: PEBBLE BED MODULAR REACTOR PRE-APPLICATION REVIEW
SUBJECT: SUMMARY OF PUBLIC MEETING WITH PEBBLE BED MODULAR REACTOR (PTY) LTD. REGARDING PRE-APPLICATION ACTIVITIES AND REVIEW OF WHITE PAPERS

The U.S. Nuclear Regulatory Commission (NRC) staff met with representatives from Pebble Bed Modular Reactor (Pty) Ltd. on July 18, 2007, to discuss the status of pre-application activities and the ongoing review of white papers that have been submitted for the Pebble Bed Modular Reactor (PBMR). The purpose of the meeting was to hear from the pre-applicant regarding their project related activities and hold technical discussions regarding four white papers that have been submitted and are currently under review by the NRC staff. The meeting notice with agenda was published on July 3, 2007 (ML070960074).

The meeting was a Category 1 meeting and observed by the public and interested stakeholders. The attendance list for the meeting is shown as Enclosure 1 and the agenda is included as Enclosure 2. PBMR presented two meeting handouts that can be accessed through the Agencywide Documents Access and Management System (ADAMS) under Accession Nos. ML072050132 and ML072050140. If you do not have access to ADAMS or if there are problems in accessing the handouts located in ADAMS, contact the NRC Public Document Room (PDR) reference staff at 1-800-397-4209, 301-415-4737 or by e-mail to pdr@nrc.gov. Additionally, NRC made a presentation that can be accessed under Accession No. ML072050147. In preparation for the meeting, NRC published for public disclosure through ADAMS preliminary feedback on three of the four white papers and shared this document with PBMR (ML071860005).

The presentation by PBMR provided the following information:

1. The planning for construction of a demonstration PBMR plant is proceeding in South Africa. There is a relationship between the pre-application activity with the NRC and completion of the demonstration plant in that the design certification is expected to end at approximately the same time as licensed operation begins.
2. During pre-application, PBMR is not expecting to close out all issues or receive a safety evaluation report of the type that has conventional licensing significance. PBMR expects technical feedback from NRC that would enable them to proceed with planning and execution of activities such as their test program. They hope that the pre-application activity will be associated with NRC's international regulatory initiatives.
3. As shown on the schedule (ML072050140), fifteen white papers are expected to be submitted by the end of 2008. The next papers are on fuel performance and radionuclide release. PBMR will be seeking more detailed review of some papers such as the one on fuels testing. No paper dedicated to consideration of containment is

expected. PBMR is not in a position to prioritize papers definitively until they have some more feedback on the papers currently under review. They indicated that, subsequent to the staff's documentation of the reviews so far, they would provide information regarding: (1) areas where significant portions could be targeted for completion during review of the design certification application showing "open items" that indicate unresolved issues; (2) identify specific white papers whose review is critical to support long lead activities such as fuel manufacturing and quality assessment; (3) identify those white papers where a trade-off can be made between scope and depth of the review to optimize resources.

The NRC staff provided the following information as background for the meeting:

1. The review of the white papers is consistent with the Commission's advanced reactor policy statement, and enables the staff to better understand the PBMR safety approach.
2. The four white papers under review are on the subjects of (1) PRA Approach; (2) Licensing-Basis Event Selection; (3) System Structure and Component Classification; (4) Defense-in-Depth. The meeting discussion would cover all four although the preliminary feedback provided in the document under (ML071860005) only covers the first three. The results of discussions will be considered in providing more formal feedback in August 2007.
3. It is not possible to make a commitment to review the expected white papers given the constraints on staff resources. The staff expects to complete the work on the current four during 2007 provided PBMR responds expeditiously to the feedback that will be issued.

Most of the meeting involved technical discussions on issues of concern to the staff regarding the white papers. Each of the four papers was discussed in turn. The outcome objectives provided by PBMR in Section 5 of each paper played an important role in setting the framework for the discussion. The following provides a high level identification of some of the topics:

- Clarifying the role of the probabilistic risk assessment (PRA) in the licensing process, including topics such as, achieving the requisite PRA quality, and the role of acceptance criteria for individual safety systems.
- Clarifying the interplay between probabilistic and deterministic concepts, including the consideration of risk metrics and specific scenarios such as chemical attack.
- Conformance with the requirements of the new 10 CFR Part 52 as well as the applicable requirements of 10 CFR Part 50.
- Clarifying the extent of reliance on processes and principles to achieve safety objectives.
- Conformance with the Commission's guidance and definitions relative to risk-informed and performance-based approaches to regulation.

The staff expects to take into consideration the PBMR responses to the issues raised during the discussion, and prepare a formal communication that would convey further needs for information and clarification.

Please direct inquiries regarding this meeting to N. Prasad Kadambi at 301-415-5896, or npk@nrc.gov.

/RA/

N. Prasad Kadambi, Project Manager
New & Advanced Reactors Branch
Division of Risk Assessment & Special Projects
Office of Nuclear Regulatory Research

Project No. 732

Enclosures:

1. Lists of Attendees
2. Agenda

cc w/encls: See next page

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PBMR Public Meeting: July 18, 2007

List of Attendees

| Name | Affiliation | E-Mail |
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| Steve Frantz | Morgan Lewis | afrantz@morganlewis.com |
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AGENDA

Public Meeting to Discuss PBMR Pre-application Activities and White Paper Reviews*

July 18, 2007

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|--------------|-------------|---|---------------------|
| 8:30- 8:40 | | Introduction and Background | NRC |
| 8:40-9:30 | | Information on pre-application developments | PBMR Pty. Ltd. |
| 9:30- 10:00 | | Overview of NRC reviews so far | NRC |
| 10:00-10:15 | Break | | |
| 10:15- 11:00 | | Discussion of PRA Approach White Paper | PBMR Pty. Ltd & NRC |
| 11:00- 11:45 | | Discussion of LBE Selection White Paper | PBMR Pty. Ltd & NRC |
| 11:45- 12:00 | | Opportunity for public comment | |
| 12:00-1:00 | Lunch Break | | |
| 1:00-2:00 | | Discussion of SSC Classification Paper | PBMR Pty. Ltd & NRC |
| 2:00- 3:00 | | Discussion of D-in-D Paper | PBMR Pty. Ltd & NRC |
| 3:00- 3:15 | Break | | |
| 3:15-4:00 | | Summary Discussion | All |
| 4:00-4:15 | | Opportunity for public comment | |
| 4:15-4:30 | Wrap-up | | PBMR Pty. Ltd & NRC |

- * The PBMR White Papers to be discussed are available to the public through the NRC's ADAMS system with accession numbers: (a) Probabilistic risk assessment (PRA) approach, ML061650404; (b) Licensing basis events (LBE) selection, ML061930123; (c) Structures, systems and components (SSC) classification, ML062400070; (d) Defense-in-depth (D-in-D) approach, ML063470549. The framework for the discussion will be based on the items listed as "Issues for Preapplication Resolution" provided in Section 4 of each White Paper.