

August 29, 2007

MEMORANDUM TO: John R. Jolicoeur, Chief
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Office of Nuclear Regulatory Research

FROM: Donald M. Helton, Project Manager */RA/*
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SUBJECT: SUMMARY OF AUGUST 22, 2007 CATEGORY 1 PUBLIC
MEETING WITH HYPERION POWER GENERATION, INC.

On August 22, 2007, staff from the Offices of Nuclear Regulatory Research (RES), New Reactors (NRO), Nuclear Security and Incident Response (NSIR), and Nuclear Materials Safety and Safeguards (NMSS) met with representatives from Hyperion Power Generation, Inc. (HPG) to discuss potential pre-application activities associated with the Hyperion reactor design. A pre-application review of this design would be in preparation for an expected manufacturing license application. This meeting was requested by HPG via a letter that can be accessed in the NRC's Agencywide Documents Access and Management System (ADAMS), at accession no. ML071800261. The meeting was granted via NRC's July 13, 2007 response (ML071860201).

The meeting agenda and attendee list are enclosed (Enclosures 1 and 2) and are available at ADAMS accession nos. ML072340511 and ML072340508, respectively. The meeting was held as a Category 1 public meeting, and representatives from Areva NP, Pebble Bed Modular Reactor (Pty) Ltd., Platts, and Westinghouse attended as observers. The meeting notice was posted on August 8, 2007 and is available at accession no. ML072190046.

The NRC began the meeting by presenting on:

- High-level questions confronting the applicant and the NRC,
- Objectives of a pre-application review,
- Examples of possible pre-application topics, and
- Regulations concerning radioactive material transport.

The last item was presented by staff from NMSS, and provided the applicant with typical processes and timeframes associated with the review of a transportation application under

Part 71, Title 10, of the *Code of Federal Regulations* (10 CFR 71). The NRC's presentation (Enclosure 3) is available at ADAMS accession no. ML072320024.

Following the NRC's presentation, HPG presented an overview regarding their:

- Organization structure and partner involvement,
- Motivations for the design development,
- Intended applications of the design,
- Technical design concepts, and
- Target licensing schedule.

HPG indicated that formal documentation of their testing and analysis, suitable for NRC pre-application review, would be available in late Fiscal Year 2009. HPG's presentation is included as Enclosure 4, and can be accessed at ADAMS accession no. ML072340518.

NRC staff asked a number of clarifying questions regarding HPG's intentions and their design concept. These questions and discussions were focused (at a high level) in the following major areas:

- The technical infrastructure supporting the design development,
- Fuel behavior under normal and accident conditions,
- System behavior under normal and accident conditions,
- Materials issues,
- Operating conditions,
- Security considerations,
- Transportation analysis requirements, and
- Licensing considerations.

A few specific key points discussed are summarized briefly here:

- Technical analysis and experiments supporting the design review will be carried out through contractual agreements with the national laboratories.
- The reactor concept relies heavily on the "self-regulating" nature believed to be inherent in the fuel and system design, including control of reactivity, pressure and temperature.
- The issue of fission product retention has been preliminarily considered via intermediate heat pipes other than those used to directly cool the fuel.
- At this point, detailed analysis of materials, thermodynamic, and chemical issues has not been performed. This analysis, and related experimentation (as necessary), is planned.
- As of yet, detailed accident analysis has not been performed. This analysis, and related experimentation (as necessary), is planned.
- HPG intends to begin consideration of security and transportation issues that may affect design development.

During the public comment portion of the meeting, a representative from Platts asked if the NRC staff foresaw the need for any future rulemakings in order to issue a manufacturing license for this design. The staff responded that the recent 10 CFR Part 52 rulemaking considered this type of activity in its provisions for a manufacturing license. It was not indicated if rulemakings are foreseen in other areas, such as transportation or security.

No specific follow-up actions were identified, though it is expected that the two organizations will continue to interact on this issue.

Project No. 758

Enclosures:

1. Meeting agenda (ML072340511)
2. List of attendees (ML072340508)
3. NRC presentation (ML072320024)
4. HPG presentation (ML072340518)

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Package: ML072360204

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Mtg-Summary-082207.doc

OAR in ADAMS? (Y or N) Y ADAMS ACCESSION NO.: ML072340658 TEMPLATE NO. RES-006
Publicly Available? (Y or N) Y DATE OF RELEASE TO PUBLIC 8/29/07 SENSITIVE? N

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