

August 8, 2008

MEMORANDUM TO: William D. Reckley, Chief
Rulemaking, Guidance and Advanced Reactors Branch
Division of New Reactor Licensing
Office of New Reactors

FROM: Donald E. Carlson, Senior Project Manager */RA/*
Rulemaking, Guidance and Advanced Reactors Branch
Division of New Reactor Licensing
Office of New Reactors

SUBJECT: SUMMARY OF PRE-APPLICATION REVIEW MEETING WITH TOSHIBA
CORPORATION ON SAFETY AND REGULATORY CONFORMANCE OF
THE "SUPER-SAFE, SMALL, AND SIMPLE" (4S) REACTOR

On May 21, 2008, staff from the Nuclear Regulatory Commission's (NRC) offices of New Reactors (NRO), Nuclear Regulatory Research (RES), Nuclear Reactor Regulation (NRR), and Nuclear Materials Safety and Safeguards (NMSS) met with representatives from Toshiba Corporation (Toshiba) and its three project partners, Japan's Central Research Institute for the Electric Power Industry (CRIEPI), Westinghouse Electric Company (Westinghouse), and Argonne National Laboratory (ANL), to conduct the third of four proposed familiarization meetings on safety-related aspects of the "Super-Safe, Small, and Simple" (4S) reactor design. In addition to familiarization meetings, Toshiba's proposed 4S pre-application activities include the staff review of five technical reports to be submitted through the remainder of this year in preparation for Toshiba's planned submittal of a 4S design approval application in 2009.

This meeting provided an overview and discussion of safety and regulatory conformance of the 4S design. Held at NRC Headquarters as a Category 2 public meeting, the meeting was attended by six pre-applicant team members from Japan, five from the United States, twenty-three NRC staff members, and twelve members of the public. In addition, three members of the public listened via telephone bridge line while referring to presentation materials made publicly available beforehand in the NRC's Agencywide Documents Access and Management System (ADAMS), <http://www.nrc.gov/reading-rm/adams.html>. No proprietary information was presented. With Toshiba's permission, the NRC staff made a video recording of the meeting proceedings. Video recordings of this and other technical meetings on advanced reactors are being provided where feasible to address NRC knowledge management needs and to further facilitate information sharing and public observation of the staff's interactions with advanced reactor pre-applicants.

After opening formalities, introductions, and a short background presentation by NRC staff, the Toshiba pre-applicant team gave a series of presentations describing how the 4S safety analysis approach and criteria were developed based on the Standard Review Plan (NUREG-0800) and its event classification philosophy, how 4S exceptions to existing Regulatory Guides were identified and justified, and how a set of principal design criteria for the 4S liquid metal cooled reactor (LMR) were established by evaluating the following for completeness and applicability:

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- Appendix A, “General Design Criteria,” to Part 50, Title 10, Code of Federal Regulations.
- The LMR principal design criteria noted in (a) the staff’s preliminary safety evaluations for the Clinch River Breeder Reactor and the Power Reactor Innovative Small Module (PRISM) designs as proposed the early 1980s and early 1990s, respectively, and (b) the consensus standard of the American National Standards Institute (ANSI) and the American Nuclear Society (ANS), ANSI/ANS-54.1, “General Safety Design Criteria for a Liquid Metal Reactor Nuclear Power Plant.”
- NRC-accepted approaches for passive reactors and for regulatory treatment of non-safety systems that provide defense-in-depth to passive features.

Clarifying comments and questions from the NRC staff included a suggestion to discuss at a future meeting the 4S principal design criteria and safety analysis in relation to relevant Commission policy statements, such as those on advanced reactors and severe accidents. Toshiba reiterated its plans to submit a 4S design approval application in 2009 and projected that the preparation of a combined license application for Galena, Alaska, will commence in 2010 and be completed for submission in 2012.

Follow-up actions for the staff will include resolving resource prioritization and availability issues as needed for responding to Toshiba's requests to (a) hold a final 4S familiarization meeting on Toshiba's 4S Phenomena Identification and Ranking Tabulation (PIRT) results and (b) submit in the coming months a series of five 4S technical reports for review by the staff. Public comments were solicited before adjourning the meeting and three were provided. Detailed records of the meeting and related communications are publicly available as indicated in the following table.

Document Description	Document Location / ADAMS Accession Number
Posted public meeting notice	ADAMS ML080940431
List of meeting attendees	Enclosure / ADAMS ML082210295
Meeting presentation by NRC staff	ADAMS ML081400108
Meeting presentations by Toshiba	ADAMS ML081400095
Video of meeting on set of 3 discs	Contact: Donald.Carslon@nrc.gov , 301-415-0109
“Toshiba works on licensing approach for 2009 filing of 4S application,” <i>Inside NRC</i> , 5/26/08	External: www.platts.com (subscription) www.internal.nrc.gov/IRM/LIBRARY/ejournal/i_archiv.htm
“Meeting on the 4S nuclear reactor focuses on safety and design criteria,” KIYU radio news, 5/23/08	http://www.kiyu.com/news0508_2.htm

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Enclosure: As stated

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