

February 24, 2011

Mr. Yoshiki Ogata, General Manager
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SUBJECT: SCHEDULE CHANGE FOR THE UNITED STATES - ADVANCED
PRESSURIZED WATER REACTOR DESIGN CERTIFICATION

Dear Mr. Ogata:

The purpose of this letter is to inform you of a schedule change for the United States - Advanced Pressurized Water Reactor (US-APWR) Design Certification (DC) review. The schedule change is due to an increased scope of work associated with additional information provided or to be provided in support of the DC application.

The major areas contributing to the need for this revision of the review schedule are digital instrumentation and controls, seismic and structural analysis, and resolution of Generic Safety Issue-191, "Assessment of Debris Accumulation on PWR Sump Performance."

Mitsubishi Heavy Industries, Ltd. (MHI) has been implementing a plan since August 2009, to address the Chapter 7, "Instrumentation and Controls," issues in the areas of software program manuals (SPMs), communications independence, and quality assurance. On October 13, 2010, MHI submitted to the U.S. Nuclear Regulatory Commission (NRC), the documents identified in its closure plan to address all deficiencies. The NRC staff reviewed the revised SPMs and determined that they did not address the deficiencies. The NRC staff issued a letter to MHI on December 22, 2010, that identified specific deficiencies in the SPMs. A three day meeting was held with MHI during January 19 - 21, 2011, to discuss data communication, SPMs, and the status of requests for additional information (RAIs). On January 31, 2011, MHI submitted the revised SPMs. The NRC staff is currently reviewing these revised SPMs and plans to complete its Phase 2 review of Chapter 7 of the DC application by January 2012. This revised schedule is based on the assumption that the recently submitted SPMs adequately address all of the major deficiencies identified by the NRC staff. In addition, this revised schedule is based on MHI addressing communication independence as well as other issues, which were discussed during the meetings identified above. In these meetings, MHI committed to submitting additional details on data communication by the end of February 2011. The review schedule could be further impacted if the NRC staff identifies deficiencies during its review of the SPMs, and data communication.

As discussed in the schedule letter dated April 28, 2010 (ML100830739), MHI made structural changes to its design which required a new seismic analysis. In February 2010, MHI changed the soil structure analysis (SSI) methodology for the safety-related structures from a "soils-spring" method to a "finite element" method. To date, the NRC staff's reviews of the US-APWR Design Control Document, Revisions 1 and 2, and various supporting technical reports indicate that the information regarding the SSI analysis did not provide the appropriate level of detail. Consequently, the NRC staff's review has resulted in a large number of RAIs. MHI submitted

four technical reports between February 2010, and April 2010. The NRC staff's review of the four technical reports raised several questions regarding the adequacy of seismic models to reflect the structural response to the dynamic loads, input parameters of the seismic model, (e.g., number of modes, size of the mesh, and the effect of concrete cracking), and development of floor response spectra and member forces used for the design of structures, systems, and components. MHI has committed to provide all technical reports in response to the NRC staff's RAIs by March 2011. Based on these submittal dates, the NRC staff plans to complete its Phase 2 review of Chapter 3, "Design of Structures, Components, Equipment, and Systems," of the DC application by December 2011. Any delays in MHI responses will impact this review schedule for Chapter 3.

MHI has completed sump head loss testing and in-vessel downstream effects testing (also known as core inlet blockage testing). The results from both tests were submitted to the NRC in separate reports in November 2010. However, the results of both tests were inconclusive because they did not demonstrate that the design would adequately handle the design basis debris load. MHI recently completed the evaluation of the debris mass value (floating fiber and particulate effects). The NRC staff is currently reviewing the recently submitted revision to the Sump Strainer Performance technical report and the Core Inlet Blockage Test technical report. While the review is ongoing, the recently submitted information does not appear to adequately address the issues raised by the NRC staff. The impact on the review schedule depends on the timeliness of any additional steps that MHI plans to take to develop needed information and the demonstration of satisfactory performance of the design under design basis conditions. The NRC staff has proposed to hold a public meeting with MHI to more clearly define paths to resolution of these issues.

Given the circumstances described above, the NRC has developed the revised milestones for the remaining review phases of the DC that are shown in the Enclosure entitled "US-APWR Design Certification Application Review Milestones." The schedule also includes a milestone for the DC rulemaking activities. The rulemaking milestone assumes that the rulemaking task will start at the end of Phase 4 and last 12½ months, as described in SECY-09-0018, "Streamlining Design Certification Rulemakings," dated January 30, 2009.

By letter dated February 18, 2011, MHI provided a number of strategies that it would be implementing to expedite the resolution of all the remaining technical issues and to monitor the progress of all application review activities. The staff acknowledges that such strategies can be effective in resolving issues; however, the staff believes that the resolution of application review issues like those mentioned above will present challenges even with the revised schedule included in this letter. Therefore, we believe that it would be premature to make any schedule modifications until the proposed strategies have shown their effectiveness in resolving issues ahead of the schedule provided in this letter. The staff will monitor the progress of the application review activities for the next 6 months using the proposed strategies at which time it will assess whether the current schedule should be modified.

Y. Ogata

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If you have any questions regarding this matter, please contact Mr. Jeffrey Ciocco, Lead Project Manager for the US-APWR DC application at (301) 415-6391, or via e-mail at Jeff.Ciocco@nrc.gov.

Sincerely,

/RA/

David B. Matthews, Director
Division of New Reactor Licensing
Office of New Reactors

Docket No. 52-021

Enclosure:
As stated

cc w/encl: See next page

Y. Ogata

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US-APWR Design Certification Application Review Milestones

Task Description	Completion Date
Phase 1 - Preliminary Safety Evaluation Report (SER) and Request for Additional Information	Completed
Phase 2 - SER with Open Items	January 2012
Phase 3 - Advisory Committee on Reactor Safeguards (ACRS) Review of SER with Open Items	May 2012
Phase 4 - Advanced SER with No Open Items	October 2012
Phase 5 - ACRS Review of Advanced SER with No Open Items	January 2013
Phase 6 - Final SER	May 2013
Final Design Certification Rule	October 2013

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(Revised 02/15/2011)

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